MEETING THE NEEDS OF GIFTED AND TALENTED (GATE) MIDDLE SCHOOL STUDENTS IN TWO SOUTHERN CALIFORNIA PUBLIC SCHOOL DISTRICTS

A Dissertation

Submitted to the
Faculty of Argosy University Inland Empire
In Partial Fulfillment of
The Requirements for the Degree of
Doctor of Education

by

Monica Khalaj-Le Corre

Argosy University Inland Empire

February 2013

Dissertation Committee Approval:

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Abstract of Dissertation

In the light of budget reduction, some southern California public school districts have elected to continue serving their identified gifted and talented (GATE) population through GATE programs. Researchers, who purport acceleration, are concerned that the gifted and talented student who will remain in the regular classroom without cluster groups comprised of students of similar advanced academic ability nor teacher(s) trained to support academically advanced students (Colangelo, Assouline, & Gross, 2004; VanTassel-Baska, 2009). In their 2008-2009 GATE program applications, two school districts modeled their GATE plans based on current research in differentiation: acceleration and enrichment.

This study examined two clearly defined, traditional GATE programs and related academic services in English-Language Arts for middle school students in 7th and 8th grades in the regular classroom using the prescribed accommodations outlined within the two school districts' plans. The focus of the study was to determine (1) what instructional practices were used to differentiate instruction in the selected districts' middle schools; (2) how the differentiation instructional practices aligned or differed from one district to the other, and (3) how the Standardized Testing and Reporting (STAR) scores of GATE

students who received accommodation as acceleration only compared with STAR scores of GATE students accommodated by enrichment only.

A survey, sent to teachers of English-Language Arts in the nine middle schools of the two selected districts, comprised twenty-three questions that pertained to instructional strategies used in acceleration and enrichment. The survey statistical analysis per district indicated the responses from the two districts were not significantly different for the vast majority of the survey questions. Both districts tend to use differentiated instructional strategies as the responses to the survey questions indicate, but overall, there is not much difference in the instructional strategies across the districts. However, the survey statistical analysis per school indicated a trend in the use of acceleration in four schools in one district and a trend in the use of both acceleration and enrichment strategies in three schools in each of the two districts. Finally, the analysis showed little correlation between the STAR scores per school and district.

Despite showing that teachers of the selected districts used differentiated instruction to accommodate GATE students in English-Language Arts in the middle schools, the results indicated there was no clear preference for acceleration or enrichment, and that the STAR scores of GATE students per district and per school were not correlated to the use of such strategies.

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CHAPTER ONE: THE PROBLEM

Introduction

In California, Gifted and Talented Education (GATE) programs are in place in public schools to accommodate gifted and talented students, but the definition of giftedness is still vague. In a 1972 report to the United States Congress, Commissioner of Education, Marland, while affirming the need to accommodate gifted and talented (GATE) students through differentiated programs so that they fully achieve their potential and contribute to society, defined giftedness in terms of "outstanding abilities" and "high performance"(CEC, 2010). The state of California currently defines giftedness as "high performance capability" to be categorized as "intellectual, creative, specific academic, leadership, high achievement, performing and visual arts talent, or any other" by the school districts (CDE, 2010, p.3). In the state of California, the $44,222,000 budget for Specialized Programs, under which category Gifted And Talented Education (GATE) is placed, allocates $39,928,000 for GATE programs in 2009-10 and defers $4,294,000 until the year 2010-11 (CDE, 2010), with flexibility for the Local Education Agencies (LEA) to determine which categorical program requires funding (CDE, 2012). As a result of lack of funding, are schools selecting a lower cost GATE instruction in the form of advanced classes rather than differentiating the curriculum? More than 1,000 California public school districts identify possible gifted and talented students in the categories of intellectual ability, high achievement, and specific ability to ensure students will be accommodated within the regular classroom by regular, credentialed teachers. The California Department of Education's (CDE), Educational Demographics Unit reports a statewide enrollment of 6,190,425 students in kindergarten through 12th grade

for the 2009-10 academic year. Of those students, 480,000 or 7.75%, are identified as gifted and talented (CDE, 2010), to be accommodated by programs that are "integrated, differentiated, learning experiences" related to the core curriculum. They include such activities as: independent study, acceleration, post-secondary education, and enrichment" (CDE, 2010).

The 2002 No Child Left Behind Act (NCLB) ties school accountability with high school test scores and has pressured middle schools to balance the social support needed for adolescents with academics required to score high on the standardized tests (Moon, et al, 2002). Ten years later, one notes that teachers have been teaching the curriculum to the tests with little emphasis on creativity, critical thinking, writing and projects (LA Times, 2012).

This study analyzed the perspective of English-Language Arts teachers in middle schools to determine to what extent their school's GATE instructional practices provided differentiated instruction using acceleration and/or enrichment practices to accommodate the GATE students within the regular classroom. The literature review encompasses information about state mandates, theories, model programs and instructional practices in the classroom that relate to both acceleration and enrichment as two methods to differentiate the curriculum to accommodate the learning needs of gifted and talented students in the selected middle schools. The teachers' self-identified instructional practices to accommodate the GATE students in their middle school, specifically in English-Language Arts in 7th and 8th grades, were also defined.

Statement of the Problem

In the light of budget reduction, some southern California public school districts have elected to continue serving their identified gifted and talented (GATE) population through a Gifted and Talented Education Program (GATE). The GATE program, according to the State Legislature, "provides funding to develop unique education opportunities for high-achieving and underachieving" students in public schools (CDE, 2005, p.3), in the form of part-time groupings, cluster groupings and special day classes using acceleration and/or enrichment strategies to supplement the core curriculum (CDE, 2005). Researchers, however, are concerned that the gifted and talented students will remain in the regular classroom without the advantage of learning in groups comprised of students of similar advanced academic ability or will be taught by teachers who are not trained to academically support advanced students (Colangelo, Assouline, & Gross, 2004; VanTassel-Baska, 2009).

In their 2008-2009 GATE program applications, two school districts selected for this study modeled their GATE programs based on current research in differentiation of instruction for the gifted and talented students using acceleration and enrichment. This study examined two clearly defined, traditional GATE programs and related academic services for middle school students in 7^{th} and 8^{th} grades. Very little empirical research has been conducted in examining the perspectives of teachers of GATE identified students in middle schools to determine which of the GATE instructional practices-acceleration or enrichment- has been more effective for the students identified as gifted and talented in the middle schools.

Importance of the Problem

The research questions in this study were designed to examine the GATE teachers' instructional practices within the middle schools where they teach in two different, public school districts in southern California in regards to which one, acceleration or enrichment, was more successful in serving the needs of GATE identified students.

1. What instructional practices are used to differentiate instruction in English-Language Arts with GATE students in grades 7 and 8?
2. How do the differentiation instructional practices used to accommodate identified GATE students in regular classrooms align or differ from one district to the other?
3. How do Standardized Testing and Reporting (STAR) scores of GATE students who received accommodation as acceleration only compare with STAR scores of GATE students accommodated by enrichment only?

Purpose of the Study

The purpose of this study is to examine which of the two instructional practices is more successful in serving the learning needs of middle school students identified as gifted and talented using the prescribed accommodations outlined within the districts' plans, established in 2008, 2009 and remain in practice, currently.

Importance of the Study

This study on meeting the needs of gifted and talented learners in middle school replicates two studies, (a) a 1993 national study that examined differentiated instruction in elementary schools, and (b) a 2002 national study that examined teachers' instructional practices in the middle school and student perspectives; the 1993 study

concluded that only third and fourth grade teachers attempted to meet the needs of gifted and talented learners by modifying the regular curriculum (Archambault et al, 1993), and the 2002 study concluded that in grades 5 through 8, differentiated instruction rarely occurs in the classroom (Moon et al., 2002). The current study is important because it considers two strategies used by school districts to serve GATE students: acceleration, which uses the school curriculum structure to move students up in a higher grade or subject of strength, and enrichment, which consists of in-depth activities within the same grade level. The analysis will provide (a) districts with existing GATE programs with additional information regarding a GATE program based on acceleration and a GATE program based on enrichment in urban middle schools in southern California, b) teachers with methods to serve three categories of gifted and talented learners in the regular classroom, and (c) parents and administrators with evidence of which of the two instructional practices helps students identified as gifted and talented in the middle schools achieve higher scores on California standard tests such as the STAR Program.

Delimitations of the Study

The delimitations of the study reside in the selection of the sample population. Teachers who completed the survey provided their perspectives on the specific instructional practices their school program uses for GATE identified students in their classroom. Findings could differ if data from teachers' instructional strategies from other districts with GATE programs are included (Bryant, 2004).

Limitations of the Study

The limitations of the study are the means used to collect and analyze data. The study is limited for the following reasons:

1. Participants were limited to the middle school GATE teachers of English-Language Arts from two southern California public, school districts located in the Greater Los Angeles Basin.

2. Teacher participation was limited by the number of GATE teachers in the middle schools of the selected districts who were willing to participate and responded to their principal's request to complete the electronic survey.

3. Generalizability of results is limited by the number of teachers who responded to the survey.

Future research could include a larger population sampling size by increasing the number of public middle schools from more public school districts thereby increasing the likelihood of an increase in the number of returned surveys (Bryant, 2004).

Summary

GATE students' accommodation in public middle schools in southern California is provided through programs that deliver differentiated instruction in the form of acceleration and/or enrichment in the regular classroom. In 2010, the State of California reported the GATE population from kindergarten through twelfth grade reached 7.75% of the total population of students. Each school's expenditure per GATE student is two thousand five hundred dollars. With little money but big goals for academic success by the GATE students in their middle schools, two southern California districts have submitted a GATE plan application to the state that lays out their GATE services, methods of identification, curriculum, professional development, parent and community involvement, and budget.

Very few empirical studies have been conducted to determine which method, acceleration or enrichment is used and which is more successful in serving the needs of middle school students identified as gifted and talented. Limited by the No Child Left Behind Act and accountability, school districts and teachers are under pressure to prepare their students to meet or exceed the standard academic achievement level as assessed by the Standardized Testing And Reporting (STAR) Program.

Although there are no new applications for GATE being accepted by the California Department of Education, it is beneficial to analyze the two different GATE programs that are currently in place, as well as the instructional strategies used in the different GATE programs within the two public school districts. Notably, the two districts included for this study share some commonalities such as size of the GATE programs and choice of similar school districts within a specific region of southern California. The instructional strategies differ from one district to the other, and the impact of the two current GATE programs and instructional delivery modalities for the middle school students is reflected by the middle school students' scores on the STAR Program tests administered in grades seven and eight for English-Language Arts.

Definitions of Terms

Gifted and Talented: "A pupil enrolled in a public elementary or secondary school who is identified as possessing demonstrated or potential abilities that give evidence of high performance capability" (CDE, 2005, p.9).

Acceleration: Instructional practice in which students "are placed in grades or classes more advanced than those of their chronological age group and receive special

counseling/and or instruction outside of the regular classroom in order to facilitate their advanced work" (CDE, 2005, p.13).

Enrichment: Instructional practice in which students "remain in their regular classrooms but participate in supplemental educational activities planned to augment their regular educational programs. In these supplemental educational activities the pupils use advanced materials and/or receive special opportunities from persons other than the regular classroom teacher" (CDE, 2005, p. 13).

Cluster Grouping: Students "are grouped within a regular classroom setting and receive appropriately differentiated activities from the regular classroom teacher" (CDE, 2005, p.13).

1. Part-time Clusters: "Consist[s] of period clusters at the middle schools. Students are enrolled in class periods designated as GATE, Honors, Advanced Placement (AP) or International Baccalaureate (IB)" (Rialto, 2008, p.13).

2. Team Clusters: "Consist[s] of two or more teachers working as a team with flexible grouping strategies in core subjects when necessary" (Rialto, 2008, p.13).

Criterion-Referenced Testing: "An assessment that compares a student's test performance to their mastery of a body of knowledge or specific skill rather than relating their scores to the performance of other students" (NAGC, 2008).

Curriculum Compacting: "Instruction entails reduced amounts of introductory activities, drill, and practice. Instructional experiences may also be based on relatively fewer instructional objectives compared to the general curriculum. The time gained may be used for more advanced content instruction or to participate in enrichment activities. Instructional goals should be selected on the basis of careful analyses for their roles in the

content and hierarchies of curricula. The parsing of activities and goals should be based on pre-instructional assessment" (HOAGIES, 1997-2012).

Differentiated Curriculum: "It involves modifying the standard or regular curriculum and adding enriched educational experience needed by gifted children. A differentiated curriculum can involve either acceleration or enrichment (Archambault et al, 1993, p.3).

Differentiated instruction: "involves tailoring lessons or instructional strategies to meet the individual needs of students and the state and federal requirements" (CDE Publication).

Grade Telescoping: "To cover the same amount of materials or activities in less time, thereby allowing more time for enrichment activities and projects that better suit the interests, needs, and readiness levels of gifted students" (NAGC,2008, para.39). Instruction that entails less time than is normal (e. g., completing a one year course in one semester, or three years of middle school in two). Telescoping differs from curriculum compacting in that time saved from telescoping always results in advanced grade placement (HOAGIES, 1997-2012).

Heterogeneous grouping: "Heterogeneous groupings refer to whole classes of students of varying intellectual ability or within classroom groupings where 2-5 students of varying abilities learn together" (NMSA, 1999). It is also called "mixed-ability grouping" (CDE, 2006).

High Achievement: "A pupil consistently produces advanced ideas and products and/or attains exceptionally high scores on achievement tests" (CDE, 2005, p.11).

Highly Gifted Pupil: "'Highly gifted pupil' means a gifted and talented pupil who has achieved a measured intelligence quotient of 150 or more points on an assessment of

intelligence administered by qualified personnel or has demonstrated extraordinary aptitude and achievement in language arts, mathematics, science, or other academic subjects as evaluated and confirmed by both the pupil's teacher and principal" (CDE, 2005, p.9). Such tests are the Raven Progressive Matrices Test (a non verbal test), the Weschler Abbreviated Intelligence Scale for Children or WASI , and the Stanford Binet (Appendix D).

High Performance Ability: "The demonstrated or potential abilities that give evidence of high performance capabilities are defined by each school district governing board in accordance with regulations established by the [State Board of Education] SBE. Identification categories may include one or more of the following (EC 52202):

Intellectual, creative, specific academic or leadership ability

High achievement

Performing and visual arts talent

Any other criterion that meets the standards set forth by the SBE" (CDE, 2005, p.9)

Homogeneous grouping: "Grouping students by need, ability, or interest." (NAGC, 2008, par.23).

Icons of Depth and Complexity: Diagram outlines coined by Sandra Kaplan for GATE teachers to implement "dimensions of depth and complexity" in a lesson (Winnebrenner, 2011).

Independent Study: Students "are provided with additional instructional opportunities through either special tutors or mentors, or through enrollment in correspondence courses. These opportunities are supervised by a certificated person employed by the student's school district" (CDE, 2005, p.13).

Intellectual Ability: "A pupil demonstrates extraordinary or potential for extraordinary intellectual development" (CDE, 2005, p.11).

Learning Contract: An assessment based on new content or extension of the curriculum after compacting (Winnebrenner, 2012).

Norm-Referenced Testing: An assessment that compares an individual's results with a large group of individuals who have taken the same assessment (who are referred to as the "norming group"). Examples include the SAT and Iowa Tests of Basic Skills" (NAGC, 2008).

Part-time Grouping: Students "attend classes or seminars that are organized to provide advanced or enriched subject matter for a part of the school day. These classes are composed of identified gifted and talented students" (CDE, 205, p.13).

Portfolio Assessment: "An alternative or supplement to traditional measures of giftedness, portfolios offer a collection of student work over time that can help to determine achievement and progress. Many of the elements found in portfolios cannot be captured by a standardized test" (NAGC, 2008).

Program: "An appropriately differentiated curriculum provided by a district for identified pupils that meets the standards set forth" by the CDE (CDE, 2005, p.9).

Special Day Classes: "A special day class for gifted and talented [students] consists of one or more classes totaling a minimum school day where each of the one or more classes meets the following requirements:

(1) It is composed of [students] identified as gifted and talented.

(2) It is especially designed to meet the specific academic needs of gifted and talented [students] for enriched or advanced instruction and is appropriately differentiated form other classes in the same subjects in the school.

(3) It is taught by a teacher who has specific preparation, experience, personal attributes, and competencies in the teaching of gifted children" (CDE, 2005, p.13).

Specific Academic Ability: "A pupil functions at highly advanced academic levels in particular subject areas" (CDE, 2005, p.11).

Tiered Assignments: "A differentiated instructional strategy in which all students work toward the same goal, but activities are geared toward each student's level of understanding" (NAGC, 2008).

CHAPTER TWO: REVIEW OF THE LITERATURE

Introduction

Sandwiched between elementary and high schools, middle schools inherit the double task of supporting young teenagers' academic growth and their emotional needs. A special group of young teenagers, the students identified as gifted and talented, depends on their teachers' classroom practices to be accommodated in their content area of giftedness. GATE curriculum plans approved by the state of California and designed after current research, use the latest trends in differentiated instruction in the classroom to meet the needs of the gifted and talented students; however, studies show that middle school teachers rely on traditional methods of instruction to deliver the district curriculum and that "learning contracts, tiered assignments, advance organizers, computer programs focusing on basic skills or advanced understanding, curriculum compacting, learning centers, flexible grouping, or interest centers" remain unused (Moon et al, 2002, p.27). This study analyzed the perspective of teachers on their GATE program accommodation in their middle schools to determine to what extent they provided differentiated instruction to gifted and talented students in the regular classroom. The literature review focused on information relative to state mandates, discussed acceleration and enrichment as methods to differentiate the curriculum, presented typical characteristics of gifted and talented students, and explored the teachers' reported practices as recommended for use with students in their school's defined GATE program and plan.

Literature Review

The Legislature: Federal and State

From the Mentally Gifted Minor program established in 1961 to the Statutes of 2000, the California Department of Education (CDE) has established funding and standards for public school districts to provide a specialized program for high-achieving and underachieving students identified as gifted and talented. To be identified as gifted and talented in 1961, students had to score in the 98th percentile "or above on standardized intellectual ability tests" (CDE, 2012). In 1980, the new AB 1040 statute included creativity and visual and performing arts in the categories of giftedness. Otherwise known as gifted and talented education (GATE), the program serves 480,000 students in California public schools from K-12 (CDE, 2012).

Definition of Giftedness

The State of California defines GATE students and the categories of identification as follows:

> Gifted and talented students are defined in the *Education Code* section 55201 as pupils enrolled in a public elementary or secondary school who are identified as possessing demonstrated or potential abilities that give evidence of high performance capability. High performance capability is defined by each school district governing board. Each district shall use one or more of the following categories in defining the capability: intellectual, creative, specific academic, leadership, high achievement, performing and visual arts talent, or any other criterion proposed by the district and approved by the State Board of Education in the district's GATE application (Education Code Section 52202) (CDE,2012).

The National Association for Gifted Children (NAG) defines giftedness as a "relative term", which is not restricted to "IQ alone" (Calvan, 2005); however unclear the definition of a gifted and talented student is, the highly gifted, on the other hand, is the student who scored 150 points or higher on an assessment of intelligence administered by school personnel (CDE, 2005, p.9).

Program Funding

Kindergarten through twelfth grade (K-12) GATE education funding, which is regulated respectively by the Education Code and the California Code of Regulations, was amended in 2000 (CDE, 2012). It is formulated on the average daily attendance (a.d.a.) "for all students in the district" (CDE, 2012). The 2011-2012 California State Budget apportions $81.4 million to school districts and county offices of education (2011); the 2012-2013 state budget funds $68.4 billion, based on Proposition 8 that guarantees funding from the General Fund, for K-12 programs, which shows an increase by $ 17 billion over the past four years and by $2,500 per K-12 student (California State Budget, 2012, p.17). Similarly to the 2011-2012 Budget, the new budget ensures schools with less than 1,500 in average daily attendance (ADA) will receive $2,500 for their district's GATE programs. However, the CDE, in its February 2009 budget package, "authorized local educational agencies (LEAs) to use funds from about 40 categorical programs "for any educational purpose" for a five-year period ending on June 30, 2013" (CDE, 2010) based on the funding allotted in 2007-08 or 2008-09 (CDE, 2011).The GATE program, listed as Specialized and Categorical, thus sees its funding at risk of being redirected to serve other programs that school districts decide to prioritize over GATE. In contrast, Special Education funding is increased to $7.4 million (CDE, 2011)

while in the State Testing and Reporting Results (STAR) annual report to the State of California Legislature, the cost for the STAR Program testing, taken from the General Fund, is projected to be $66.7 million in 2011-2012 (CDE, STAR, 2011).

GATE Standards

The standards for a GATE program are listed in the California Code of Regulations (CCR) Title 5 and the State Board of Education (SBE) Recommended Standards for Programs for Gifted and Talented Students: (1) “unique opportunities for high-achieving and under-achieving” students identified as gifted and talented; (2) participation of students “in the upper range of intellectual ability”; (3) participation of disadvantaged students and culturally varied backgrounds; (4) maintained or improved program quality; (5) varied “programmatic approaches and cost levels”; (6) documenting and updating parent consent; (7) “academic components shall be included in all program offerings”; (8) programs should “reflect the assessed needs” of gifted and talented students; (9) provide equal access and opportunity to all identified and gifted students; (10) district plans shall be made public and describe “the appropriately differentiated curricula as well as the methods used to examine the appropriateness of the identified pupil’s total educational experience” (CDE, GATE Resource Guide, 2005, p.7). The types of GATE program service according to the SBE consist of special day classes, part-time groupings, and cluster groupings; such service can be augmented with independent study, acceleration, postsecondary education, and enrichment (CDE, GATE Resource Guide, 2005, p.12).

Program Application

Prior to 2009, school districts would submit a GATE program application for approval and funding to the CDE by April of the fiscal year. The GATE programs currently in place in southern California public schools are programs that have previously received the CDE approval stamp for one year to three years depending on the schools' selection of standards at the time of the application. Standards for GATE plan approval from minimum for a one year approval, range from commendable for a two year approval to exemplary for a three year approval (CSBE, 2005).

GATE funding applications for 2009-2010, were not accepted by the CDE but continued funding has been approved until 2013 (CDE, 2012); in addition, public school districts that opt to provide GATE services as long as their programs are in compliance with the statutes, are not submitted to oversight since the state does not operate site visits for program validation.

Program Implementation

The program, regulated respectively by the Education Code and the California Code of Regulations, is implemented through the Local Education Agencies (LEA); the agencies decide whether or not the district will provide differentiated education within the regular school day as well as whether or not the district will provide advanced classes and college classes options regardless of the student's age. The GATE program options are listed as guidelines in the CDE Gifted and Talented Education Program Resource Guide (2005); school districts that elect to provide such services submit a plan for approval by the state. LEAs may elect to service the district's GATE identified students through special day classes, part time groupings, or cluster groupings with additional

strategies such as independent study, acceleration, postsecondary education, enrichment, as well as "services for Underachieving Gifted and Talented Pupils, and services for Linguistically Diverse, Culturally Divergent, and /or Economically Disadvantaged Gifted and Talented pupils" (CDE, 2005, pp.12-14) as long as they follow the guidelines stated by the CDE.

GATE Education Theories and Standardized Tests

Howard Gardner's theory of multiple intelligence (1983), Benjamin Bloom's taxonomy (1956), and Lev Vygotsky's Zone of Proximal Development (ZPD) have inspired researchers in the field of education to design models to provide help for teachers to facilitate differentiation in the classroom and outside the regular classroom; two instructional approaches for the gifted and talented middle school students are acceleration and enrichment.

Gardner's theory of multiple intelligences calls for a diversified school curriculum to provide for the needs of the learners (Tanner & Tanner, 2007). His eight intelligences— music, kinesthetic (movements and hands-on learning), logical-mathematical, spatial (pictures and spacial [sic] placement), linguistic, interpersonal, intrapersonal ("to think about and understand oneself") and naturalist." (Osmun, 2008) -- are constant learning identifications that correspond to a curriculum that promotes creative thinking, problem-solving, and school staff involvement (Project Zero Classroom, 2012). With its focus on learning styles, the theory calls for assessing each student's learning style to incorporate it in a matching curriculum that "supports the standards" (Osmun, 2008). Learning styles range from specific strength in read/write, auditory, visual, or kinesthetic to a blend of all (VARK) and when incorporated in a

school curriculum can help students perform better on tests (Osmun, 2008). A pilot program based on Gardner's theory of multiple intelligences shows that the seventh and eighth graders of a middle school performed better on a standardized test than 90% of the students in the U.S. Of course, such a program requires spending in resources such as class material, online access, most of all staff involvement (Osmun, 2008) and flexibility; however, the curriculum was developed to meet the benchmark on the standardized test rather than focus on a differentiated assessment as some researchers in enrichment theory in the middle school purport.

Bloom, known for the taxonomy of learning, set forth the learning task theory with its objective counterparts (Bigge et al, 2004) based on the ability of the learners to master the following cognitive skills: knowledge, comprehension, application, analysis, synthesis, evaluation (Bloom & Krathwohl, 1956). These skill levels are used in the STAR Program to assess students' mastery of the core standards. For instance, the California Standards Test (CST), one of the four tests in the STAR Program administered in grades 4 and 7, contains two components in English-Language Arts: reading and writing. In writing, for example, the test questions require students to answer multiple choice questions as well as produce various narrative, argumentative writing, summaries of texts, response to literature, and research reports (CDE, 2008). The test components require knowledge, comprehension, application, analysis, synthesis, and evaluation skills. Students are expected to perform at various levels on the CST to demonstrate their mastery in the content area: advanced, proficient, basic, and far below/below basic, the proficient and/or advanced level being the goal in California public schools (CDE, 2009). Bloom's Taxonomy and its revised version by Krathwohl (2002) have improved

academic achievement by providing teachers with guidelines or tables to match their objectives with their classroom assessment methods thus "maximizing (not just documenting) student achievement"(Krathwohl, 2002); furthermore, studies show that Bloom's Taxonomy's effectiveness can be extended when students are using online setting such as WebCT courses in college, which allows for the use of a variety of instructional and assessment tools (Halawi et al, 2009). According to Ferguson (2002), there is a direct implication between the revised taxonomy and team-taught units (Krathwohl, 2002). Since state standards in various subjects such as English and Social Studies often overlapped (Krathwohl, p.238, 2002), teachers could work together to integrate the two subjects in one combined unit by using the taxonomy table.

Vygotsky's ideas about how children learn further Bloom's cognitive domains and energized education in the 1980s with the Zone of Proximal Development (ZPD) concept. ZPD is the "discrepancy between a child's mental age and the level that the child may reach, with assistance, in solving problems" (Bigge and Shermis, 2004. p.130). Such assistance provides room for cognitive development to occur rather than focusing on the tasks the child has already mastered. In other words, Vygotsky's theory encouraged teachers to focus "slightly above each respective child's ZPD" (Bigge and Shermis, 2004. p.129). Studies show Vygotsky's ZPD has improved academic achievement in reading with the use of a computer-based program, Accelerated Reader, that allows students to select from a list of books to read independently at their level, and through a system of questions, immediate feedback, and points earned, move onto the next grade level in reading (District A). Proponents of Accelerated Reader, or its 2003 version Renaissance Reader, purport that students will become lifelong readers if they

read in their zone of proximal development for twenty minutes to one hour daily, take a test to assess their comprehension of the material, are given feedback by teachers, and earn points and awards (Schmidt, 2008). The placement of students in their "specific reading zone" (Schmidt, p.202, 2008) is based on their STAR scores. This has proved an effective method of improving student reading by accommodating the differentiation in individual students' reading levels.

Acceleration

When Pressley defined acceleration as "an educational intervention based on progress through an educational program at rates faster or at ages younger than typical" (Colangelo, Assouline, & Gross, 2004), researchers purported that acceleration, when individualized (Gross, 2004) and well-planned (Southern & Jones, 2004), provides gifted and talented students with the opportunity to match their ability to learn with a differentiated curriculum that allows them to develop at their own pace. According to Colangelo, Assouline, & Gross (2004), the types of acceleration offered in public schools from K through 12 are: grade-skipping, early entrance, curriculum compacting, telescoping curriculum, single-subject mentoring, AP classes, early graduation, and acceleration in college.

An example of acceleration used by Stanley in 1975, consisted of experimenting with above-grade level testing in the subject of math, which resulted in the Talent Search program. The program was designed "to select students for accelerated learning programs" (Olszewski-Kubilius, 2004); such a program has been extended to sixth graders in 2007 via the Explore test (Lupowski-Shoplik et al., 2003) and "students are given college admissions tests at the middle-school level" (Colangelo et al, 2004).

Proponents of the Talent Search theory of giftedness focus on advanced reasoning ability rather than retention of the material (Lubinski & Benbow, 1994); by selecting gifted and talented students who score in the top 3% or 1% on standard achievement tests (SAT), researchers can predict the participants will be able to complete a chemistry course, for instance, in three weeks or a doctorate 25% faster or 50% faster for the top 1% (Lubinski, 2004).

Another example of acceleration in the middle school is the selection of Advanced Placement (AP) and International Baccalaureate (IB) courses offered to support the needs of the gifted and talented student in the regular classroom as the districts' GATE plans testify (Appendix D). AP courses are college-credit courses developed by college faculty that allow the district to serve gifted and talented students in their area of strength through curriculum-based acceleration students "will need later in college"(College Board, 2010); as college-preparatory, AP scores qualify students to be admitted to college and placed in a college course. Hence, students take AP courses in high school; as a result, some districts provide middle school students identified as GATE with a schedule accommodation to attend the AP course at the high school or transportation to and from high school. The transportation cost is at the discretion of the District GATE Advisory Board where GATE parents serve as officers. Based on student performance on national exams, such courses are often the choice of districts in their GATE programs because of the availability of the curriculum, their immediate conversion into credits for college admission (Kyburg et al, 2007), the emphasis on the exam as a preparation for college courses (Callahan, 2003) and the prestige associated with such courses. It is worth noting that AP courses, which in their original form were

developed for high school students in the 1950s, currently branch out into a pre-AP program titled Springboard with its components of readily available curriculum and assessment tools in English and math for grades six through twelve (College Board, 2011). The volume of AP courses has increased 200% from 2001 to 2011 in California public schools (College Board, 2011). IB courses are also recognized by colleges, but they differ insofar as they are a worldwide program, the International Baccalaureate, itemized in four academic programs that are available for elementary schools—Primary Years Programme-- middle schools—Middle Years Programme-- and high schools—Diploma Programme and IB Career-Related Certificate. To become an IB school, each school site must submit an application to the IB Board, and students take an exam to enter the program. Once in the program, students can decide to continue in the entire program or select the certificate, in which case they will only take a course. Most IB students will also take AP courses as the two are often combined on school campuses, for instance, AP History and AP English, but the exams are different. The IB English exam consists of an oral examination as well as an additional curriculum A strong component of the IB Program is its courses focused on molding students as future citizens of the world with community involvement in group projects where leadership and role play are involved, research, personal projects to analyze works of art, and philosophy course such as Theory of Knowledge (IBO, 2005-2012).

Acceleration requests at the higher grade levels remain at the discretion of the school district; skipping a full grade is more salient than subject-matter acceleration according to early research (Pressey, 1949) and does not “cause academic or social/emotional difficulties” (Kulik & Kulik, 1984; Rogers, 2002). Researchers agree

that acceleration "is educationally and developmentally advisable" (Lubinski, 2004) and that gifted students benefit from work in accelerated classrooms; furthermore, standardized achievement test scores of accelerated students outperformed non-accelerated students with a higher IQ, by one year (Kulik, 1992).

A component of accelerated practices is the level of expertise expected from students in the content area; such expertise is necessary to modify the curriculum and certify that the student has mastered the material; similarly, schools must ensure that such mastery of standards is recognized by colleges. California does not require GATE certification for teachers of the gifted and talented.

Enrichment

Proponents of enrichment programs for the gifted and talented students state such programs provide opportunities beyond the constraints of traditional intelligence tests. The concept of their theory, based on the works of John Dewey (1913) and Jerome Bruner (1966), identifies three principles of the learning experience: above average ability, high level of task commitment, and high level of creativity (NEAG, 1990). Dewey's theory of instruction relies on the interdependence of the school curriculum and the learner's experience during which exploration is directly connected to the curriculum in activities that are completed outside of class. These "extraclass" activities or "collateral learning" (Tanner, 2007, p. 117) motivate the learner with an impetus to discover meaning of facts and formulas rather than memorizing them. As a result, collateral learning impacts test-taking by decreasing the level of anxiety in the test-taker. A precursor to the gifted and talented areas of identification, Dewey also understood

intelligence is multi-faceted and comes in various levels of expertise albeit not performing arts (Tanner & Tanner, 2007).

Bruner, while acknowledging the interdependence between the school curriculum and the learner's experience, describes the learning of new information as a process that involves three necessary steps to construct meaning: acquisition, transformation, evaluation (Bigge, Shermis, 2004). Acquiring new information means simply refining "previous knowledge" (Bigge & Shermis, 2004, p.138), transforming it means using it in a new task, and evaluating it means to check if the new information is plausible. Bruner's three-step system necessitates the learner's active participation to ensure the new knowledge is adapted to him or her. Students' perception of new information is based on their ability to use language, make predictions, deal with 'what if' propositions, and solve problems about which they are passionately interested. Educators, according to Bruner, should focus on "the development of students' confidence in the solvability of problems by the use of 'mind' in the sense of relating present conditions and future results of consequences" (Bigge & Shermis, 2004, p.143). As such, Bruner's ideal mode of instruction in a school setting is the seminar approach in which the teacher dispenses new information through discussion, and the learners explore problem solving alternatives, thus empowering students to be independent learners and critical thinkers by allowing them to select their intentions and goals.

Renzulli's approach to learning explores matching resources with student abilities using tiered assignments. His works along with Reis and Tomlinson at The National Research Center on the Gifted and Talented (NRC/GT) is funded under the Jacob K.Javits Gifted and Talented Students Education Act created to serve "students

traditionally underrepresented" "particularly economically disadvantaged, limited English proficient (LEP), and disabled students" (Ed.Gov., 2012). Renzulli's approach to match enrichment resources with young students' abilities resulted in the Enrichment Triad Model (ETM) program of the late seventies, which has expanded into the current Schoolwide Enrichment Model (SEM). SEM, available for purchase by schools, comprises differentiation, depth, complexity, enrichment, and can be customized to each school's demographics, local resources and faculty strengths; in addition, the models come as a kit with Web instructions, downloads for teachers as well as resources links for teachers and parents (NRC/GT). Proponents of enrichment programs consider acceleration as a one technique that relies on differentiation to accommodate individual differences in the classroom based on students' performance on academic tests (NRC/GT). Further, they assert that differentiation relies on traditional methods of instruction whereas enrichment approaches such as curriculum modification or compaction aim to identify a larger body of gifted and talented students which falls below the top 3% on IQ tests but display "creative-productive giftedness" (Renzulli & Reis, NRC/GT).

Renzulli developed the Enrichment Triad Model in the mid-1970s, and its newest Schoolwide Enrichment Model (SEM) version provides the latter with opportunities in three tiers. Type I calls for a team of parents, teachers and students to seek topics outside the curriculum; type II involves critical thinking activities and experiments in the classroom; and in Type III self-directed learning skills are mastered (Renzulli, NRC/GT). SEM allows a broader student population-15-20%- called the talent pool, to participate in regular enrichment experiences. Enrichment approaches used in SEM are curriculum

compacting, talent portfolio, non-graded cluster grouping by skill level, within and across grade pull-out groups, advanced classes, self-designed courses, and special programs such as Young Writers, Saturday and Summer Programs, Odyssey of the Mind, Math league, Science Fair, mentorships and early admission (NRC/GT, Figure 4). The Discovering Intellectual Strengths and Capabilities (DISCOVER) Projects model is a performance-based assessment based on the theories of Gardner and Sternberg which targets students from "culturally, linguistically, economically, and geographically diverse background" (Maker, 2005, p.7). The learner centered and community centered assessment program invites middle school students "to understand concepts such as culture, extinction, exploration, diversity, and systems" (Maker, 2005, p.91) by rotating in the classroom learning center two hours a day and completing a portfolio. A current trend in the Los Angeles Unified School District (LAUSD) to accommodate GATE students is the implementation of a student portfolio or "placemat" (Kaplan, 2010). Portfolios are not only a collection of students' assignments that reflect what students have learned, they also allow students to develop critical thinking about the significance of their work and be aware of the real world outside of school as professionals are required to maintain a working portfolio to document their work (Gallagher and Glustrom, 2010). To match resources with students' abilities in southern California, the California Department of Education has increased access to computers in the classroom through the Education Technology K-12 Vouchers Program, which, through an agreement with the Microsoft Corporation, provides funding for software in eligible schools for a total $ 25,500,000 or $ 5.31 per student until December 2012 (CDE, 2012).

40 % of the students should be receiving free lunches in order for the school to be eligible.

The Middle School Concept

Middle schools provide instruction to transition young adolescents between elementary school and high school. In the mid-1950s, junior high schools emulated the high school system while addressing the needs of young students in grades sixth through ninth by offering electives (Tanner & Tanner, 2007). To its credit, the junior high school concept provided resources, such as access to libraries and laboratories, and implemented instructional practices such as ability grouping although the goal was to prepare students for the high school block-type curriculum (Tanner & Tanner, 2007).

The middle school concept, however, focuses on the developmental needs of the young students to build a curriculum as well as a structure that ensures heterogeneous grouping (National Middle School Association, (NMSA), 2007). Curricular novelty away from the scrutiny of colleges allows for a broader exploratory experience for the young adolescents supported with flexible block schedule, team teaching, and advisory programs (NMSA, 2007). Heterogeneous grouping of students is occurring in the middle schools; however, researchers purport that gifted and talented students benefit from "being grouped together" or homogeneous grouping rather than with less gifted students (Moon et al, 2002; Kulik & Kulik, 1997).

Characteristics of Middle School Students

The middle school is a transition between the self-contained classroom and the multi-structural components of the high school for students between the ages of 10 and 15 at a time when they experience rapid physical growth and intense intellectual

development (NMSA, 2007). The middle school student is easily bored with "conventional academic subjects" but is "intensely curious" about the world, enjoys "active over passive learning experiences," and "prefers interaction with peers during learning activities" (NMSA, 2007, para. 9, 10). Methods of instruction must be based on experimentation, real-world problems, and a challenging curriculum to help students acquire complex cognitive abilities through processes (NMSA, 2007; Piaget, 1952, 1960).

Methods of Identification for GATE Programs

School districts use a variety of methods to identify students for their GATE program to maximize equal access from K through 12. According to the *Gifted and Talented Education Resource Guide*, traditional methods consist of tests such as "quotient tests, criterion referenced tests, standardized tests, content standards tests" (CDE, 2005, p.23).Some research shows that since non verbal tests fail to consider cultural differences in non native speakers, they are not as fair as a verbal test which assesses academic achievement (Moon, 2010). Non traditional methods, on the other hand, consist of referrals from teachers and parents with tools such as "portfolio assessment" and "teacher and parent observations and checklists" (CDE, 2005, p.23); a committee of trained staff, "GATE coordinator and certificated personnel" (CDE, 2005, p.22) determines if the nominated student is eligible.

The two districts identify potential GATE students through qualifying non verbal and/or academic testing as well as through a review of standardized test scores such as STAR**.** In both districts, students have to demonstrate their intellectual capabilities through testing administered at the district level twice a year starting in grade two

through ten. District A uses the Raven Matrices, a non-verbal assessment test, as well as the Wood-Cock Johnson, an academic test, and the Stanford Binet, an IQ test, to identify their GATE population in the intellectual category. The district's percentile is 92 on the Raven Matrices. Additionally, District A identifies "high academic achievers" who are not GATE identified through a Scholars Program in order to identify the underachiever GATE population (Appendix D). District B's accepts the following test scores to identify their students in the intellectual category for the GATE program: (1) a standard score of 125 or in the 95th percentile on the non-verbal Raven Standard Progressive Matrices administered as a group test, and (2) a standard score of 125 on the verbal Wechsler Abbreviated Intelligence Scale for Children (WASI) administered as an individual test (Appendix D). Incidentally, both districts consider the results of STAR for identification in the high achievement category with a score of 5—advanced level—in two subjects for two consecutive years (Appendix D).

Pros and Cons of IQ Testing and Placement

The process of identification and placement in the GATE program includes sources such as "intelligent quotient tests, criterion referenced tests, standardized tests, content standard tests" (CDE, p. 23, 2005). Students should be in the 95th percentile on their IQ or aptitude test such as the Raven Progressive Matrices Test (a non verbal test), the Weschler Abbreviated Intelligence Scale for Children or WASI, or the Stanford Binet (Appendix D) to be identified (Winner, 1997). Most school districts use the Raven, a nonverbal test, to identify its GATE population as it is a fair measure of assessment to ensure students with disadvantages and various linguistic backgrounds are identified as required per the California Department of Education (CDE, p.11, 2005). However,

proponents of verbal tests believe that they "are better predictors of academic achievement" (Moon, p.4, 2010). As a result, students who score high on an IQ test are identified as high-ability learners; they are thus placed in an advanced class with older students or students who are not GATE identified. With no curriculum modification, such classes are taught by teachers who have no training in GATE accommodation (Moon, 2010, Westberg, et al, 1993). Experts in giftedness believe that there are differences not only in areas of giftedness but also in the degree of giftedness; a score of 130-150 on an IQ test shows moderate giftedness whereas a score of 180 or above shows profound giftedness (Moon, 1997). Consequently, providing a challenging modified curriculum based on teachers' observations of their students' level of boredom in class would be an alternative to testing (Moon, 1997, Renzulli, 1994). Finally, it is worth noting that testing materials is apportioned in districts' GATE plans under "Books and Supplies" (Appendix D), which amounts to $32,725 for District A, for instance.

Summary

Research shows that even though GATE instruction is both a federal and state mandate, giftedness is vaguely defined, thus proponents of theories to serve the gifted and talented population in the middle school differ from acceleration to enrichment. Proponents of acceleration consider IQ and state Standard Test scores to move students quickly through the academic K-12 system and up to college using grade-skipping, early entrance in high school or college, AP and/or classes, and early graduation. Proponents of enrichment on the other hand focus on above average ability, high level task commitment, and high level of creativity with extra class activities and projects to deepen

the learning experience during schooling. Thus public school districts use a variety of approaches that, within their budget, will serve the needs of their GATE students

Conclusion

This literature review indicates that experts propose that the needs of gifted and talented students in middle schools ought to be met through acceleration and/ or enrichment within the regular classroom in order for the students to reach their academic as well as emotional potential. The significance of the problem is best met by teachers who, although trained in differentiated instructional strategies, are faced with the everyday challenge of engaging GATE students while the public school districts are faced with the challenge of budgeting for accommodation services. They must include the purchase of testing materials and computer software in order to remain in alignment with the State Department guidelines.

CHAPTER THREE: METHODOLOGY

Research Design

Guided by the research questions, the researcher conducted a quantitative study to examine the difference between instructional strategies used in the two districts' middle schools and the difference between the STAR scores of the two districts' middle schools.

Research Questions

The researcher posited that GATE teachers would use differentiated instructional strategies in the middle school classroom that enable GATE identified students to fully develop their potential.

Null hypothesis

There is no significant difference between the two instructional strategies, acceleration or enrichment, and the development of GATE students' potential (Creswell, 2009).

The research questions in this study were designed to examine the GATE teachers' instructional practices within the middle schools where they teach in two different, urban, public school districts with a current GATE program in southern California.

1. What instructional practices are used to differentiate instruction in English-Language Arts with GATE students in grades 7 and 8?
2. How do the differentiation instructional practices used to accommodate identified GATE students in regular classrooms align or differ from one district to the other?

3. How do Standardized Testing and Reporting (STAR) scores of GATE students who received accommodation as acceleration only compare with STAR scores of GATE students accommodated by enrichment only?

Validity and reliability factors of STAR

The State Legislature requires school districts to administer achievements tests to assess the content standards in English-Language Arts, mathematics, science, and history/social science for grades two through eleven (CDE, 2011). The Standardized Testing and Reporting (STAR) Program is in use as is in California until 2013 (CDE, STAR, 2011). Referred to as the Stanford Achievement Test Series, Ninth Edition (Stanford 9), the STAR Program consists of four tests with multiple-choice questions from the Stanford 9, with additional California-specific questions (CDE, STAR, 2010). As a norm-referenced test, the STAR Program results are used to compare individual performance with the grade requirement and with the grade scores (STAR, 2009). Four tests are administered to public school students from grades two through eleven: (1) the California Alternate Performance Assessment (CAPA) is designed to assess students with disabilities' performance in English-Language Arts, mathematics, and science; (2) the California Modified Assessment (CMA) is similar to CAPA; (3) the California Standards Test (CST), is a criterion-referenced test to assess standards in English-language arts, mathematics, science, and history-social science; and (4) the Standards-based Test in Spanish (STS), a criterion-referenced test that assesses students in reading/language arts and mathematics (CDE, STAR, 2011). A criterion-referenced test is used to show to what extent students meet an objective; such a test is built based on the objective whereas a norm-referenced test evaluates students in comparison with each other (CTL, 2012).

STAR results or performance levels describe the student's achievement on the California content standards as advanced, proficient, basic, below basic, and far below basic (CDE, STAR, 2011). The results are used to determine the Academic Performance Index (API) and the proficiency in content standards as mandated by the No Child Left Behind Act (CDE, STAR, 2010). A 62nd percentile score on the STAR Program tests, for example, means that the score is similar or above 62 percent of the students. As such, the STAR Program is not designed to assess "student knowledge of specific curriculum or instructional program" (CDE, 2004, p.1).

The data for the study were extracted from a survey designed to collect GATE English-Language Arts teachers' methods of instruction based on their school program's reported instructional practices used to accommodate the GATE 7th and 8th graders in their school. Prior studies investigated strategies at the administrative and teacher level (Anderson, 2006) but none has focused on the perspectives of teachers in acceleration and enrichment practices that their GATE school program uses in the regular classroom. No research has been conducted on the impact of such practices on the STAR Program scores, most specifically the CST, of gifted and talented students in public middle schools in southern California. The participants were limited to English-Language Arts teachers of GATE identified students in 7th and 8th grades in two public school districts, who willingly returned the survey forwarded to them by their school principals.

GATE Programs in the Selected Middle Schools

Each one of the two school districts has a history of long-established GATE program and uses a model of education based on research. District A's GATE program, which is delivered in the middle school during the regular school day, focuses on

"accelerating students in the areas of their giftedness" (Appendix D) through part-time grouping in (1) period clusters such as Honors, Advanced Placement (AP), or International Baccalaureate (IB), and (2) team clusters led by two or more GATE certified teachers working as a team. The program includes methodology based on research by Sandra Kaplan, Carol Ann Tomlinson, Joseph Renzulli and Sally Reis (Appendix D).The GATE program in District A is to be found in a sub-section of Educational Services under Curriculum Services, QEIA/College Programs/GATE; the acronym QEIA stands for Quality Education Investment Act, a program which is guaranteed funding within Proposition 98 in the 2012-2013 state budget (California Department of Finance 2012) (See Appendix D). Conversely, District B's program focuses on enrichment by offering "advanced exploratory classes" led by a team of certificated, or working towards certification, GATE teachers in cluster classes during the regular school day (Appendix D). Such cluster classes allow students to "have challenging activities that extend the regular lesson to new and more difficult levels of understanding" (Appendix D). Both districts affirm their belief that GATE education should be part of the regular school day (Appendix D) to accelerate students in their areas of giftedness (District A) or extend the regular lesson to new and more difficult levels of understanding (District B).

Population and Sampling Procedures

Demographics. Located in the Greater Los Angeles Basin, both districts serve a diverse student population in residential communities. Current enrollment in District A is 30,290 with 10.8% GATE identified students and 9.2% tested for the 2011 STAR Test. District B's enrollment is 27,784 of which 8.6% is GATE identified and labeled as such

in the 2011 STAR Test (CDE, 2012). The population of English Language Learners (ELL) in District A is 28% with Spanish as the dominant native language whereas District B's ELL student population is roughly the same with 25% having Spanish as the dominant native language (CDEEO, 2010-2011).

Survey participants were English-Language Arts teachers of GATE students in 7th and 8th grades. In their GATE plan applications, both districts state they offer professional in-house development in gifted education to their fully credentialed middle school and high school teachers. In addition, District A offers the option of tuition reimbursement for courses towards a GATE Certificate with the University of California, Riverside, Extension (UCRX) and a master's program with a GATE emphasis through the California State University, San Bernardino (CSUSB) (Appendix D). District B "cooperates" (Appendix D) with the UCRX program in GATE certification. Both districts offer their GATE teachers the opportunity to attend the California Association for the Gifted (CAG) Conference under Sandra Kaplan's leadership. Some District A's and District B's teachers have been presenters at the CAG conference. District A has 193 teachers with a GATE certificate; District B allows teachers three years to complete their UCRX GATE Certificate from the time they have been assigned a GATE class (Appendix D).

GATE students are taught by a team of GATE teachers at each level (Appendix D). In District A, the teams of teachers and GATE Coordinator meet once a week to collaborate on instruction, teaching strategies, and evaluate student progress.

GATE Categories, Identification through testing, and Curriculum and Instruction. In accordance with the State of California's code, both districts identify

gifted and talented students in the following categories to provide students with a program that serves their needs: intellectual ability, high achievement, and specific academic ability(Districts A and B) with the additional visual and performing arts identification category for District B (Appendix D).

The two districts identify potential GATE students through qualifying non verbal and/or academic testing as well as through a review of standardized test scores such as STAR**.** In both districts, students have to demonstrate their intellectual capabilities through testing administered at the district level twice a year starting in grade two through ten. District A uses the Raven Matrices, a non-verbal assessment test, as well as the Wood-Cock Johnson, an academic test, and the Stanford Binet, an IQ test, to identify their GATE population in the intellectual category. The district's percentile is 92 on the Raven Matrices. Consequently, District A is confident that a non-verbal test such as the Raven is instrumental in identifying a GATE population that mirrors the district's diverse demographics as well as gifted and talented students with learning disabilities (Appendix D). Additionally, District A identifies "high academic achievers," who are not GATE identified, through a Scholars Program in order to identify the underachiever GATE population (Appendix D). District B accepts the following test scores to identify their students in the intellectual category for the GATE program: (1) a standard score of 125 or in the 95^{th} percentile on the Raven Standard Progressive Matrices, (2) a standard score of 125 on the Wechsler Abbreviated Intelligence Scale for Children (WASI), or (3) "a Standard Scale Score of 125 or above" on the Stanford Binet (Appendix D). Incidentally, both districts consider a STAR score of 5 (advanced level) in two subjects and for two consecutive years for identification in the high achievement category (Appendix D).

District A's program in the five middle schools consists of special day classes, part-time groupings, and cluster groupings with a differentiate curriculum that utilizes strategies such as the Bloom's taxonomy, the Icons of Depth and Complexity in acceleration, honor courses, independent study as needed, enrichment (pull-out/before/after school/Saturday classes), services for underachieving, culturally diverse, and economically disadvantaged, and special counseling (Appendix D).

District B's program in the four middle schools consists of special day classes, part-time groupings, cluster groupings, acceleration, enrichment (pull-out/before/after school/Saturday classes) and services for underachieving, linguistic and culturally diverse and economically disadvantaged students (Appendix D). Furthermore, District B places students in the GATE program according to their identified specific abilities; for instance, if a student is identified as gifted and talented in English-Language Arts, he or she will not always be placed in a GATE math class unless their category of GATE identification is intellectual ability (Appendix D). In order to remain in the program, GATE students in the middle school have to maintain a C or above in English-Language Arts, social studies, math, and science. If grades are lower for two terms, the student is placed on academic probation and in regular classes (Appendix D).

Instrumentation

Data Collection Procedures. GATE teachers from District A and District B were surveyed to identify the instructional strategies they used in English-Language Arts in 7^{th} and 8^{th} grades in the selected middle schools to deliver the districts' GATE programs. To collect data, the researcher initially contacted each district's Director of Accountability and Assessment in order to submit a request to conduct research. The

researcher emailed the directors a letter along with a copy of the online survey (Appendix C). A copy of the letter is included in Appendix A. At that time, district GATE Coordinators were contacted via email as well (Appendix B).

The application process was expedited by each district's Directors of Assessment and Accountability after ensuring that data collection would remain anonymous, and that the researcher would agree to email the survey link to the district's office. Upon receiving approval to conduct research from the districts, the two districts' Directors of Assessment and Accountability, along with the district GATE Coordinator, requested that the researcher email the teacher survey link directly to the principals of the middle schools with a letter informing them of the purpose of the study (Appendix A). The school principals' email addresses, which are available on the school website, were confirmed via email by District A's Director's of Assessment and Accountability and by District B's district GATE Coordinator. District A's Director of Assessment and Accountability would email the principals to inform them of the upcoming researcher's email. In addition, an informed consent form, which summed up the purpose of the study and allowed participants to withdraw at any time, was included in the teacher survey (Appendix C). All correspondence with the school districts was through the Directors of Assessment and Accountability and copied to each district's GATE Coordinator. Simultaneously, as the survey links went out, a letter of consent was sent to each district's GATE Coordinator to determine the number of GATE teachers in each middle school. The letter of consent asked each GATE Coordinator to indicate the number of GATE teachers in English-Language Arts per middle school and return it to the researcher (Appendix B).

The survey was created using SurveyMonkey.com and sent to the school principals to forward to teachers of GATE students in the middle schools of the two districts. Participants were asked to complete the survey within fifteen days of its posting on SurveyMonkey.com and submit it to the researcher's email address. Twenty-four hours after emailing the survey link to the selected middle school principals, the researcher telephoned all the middle schools' principals to confirm they had received the email, sent a reminder email one week later, and a thank you email after the deadline for survey participation.

Methodological Assumptions and Limitations. The researcher assumed that all participants had received training and or certification in teaching GATE students. Since current studies emphasize the advantages of enrichment versus acceleration, the researcher anticipated finding strategies that involve critical thinking rather than retention, in-depth problem solving rather than state test preparation.

The limitations of the study reside in the sampling population and the sampling districts. GATE Teachers of English-Language Arts in 7^{th} and 8^{th} grades, who volunteered to complete the survey, provided the specific activities they use based on their district GATE plan to deliver instruction to GATE identified students in the classroom. Further, it was not possible to isolate the STAR Program scores associated with those teachers due to confidentiality.

Data Analysis Procedures

The researcher posits that GATE teachers would use differentiated instructional strategies based on acceleration or enrichment in the middle school classroom that enable GATE identified students to fully develop their potential.

Null hypothesis

There is no significant difference between the two instructional strategies, acceleration or enrichment, and the development of GATE students' potential (Creswell, 2009) where the null hypothesis is H_o, n is the number of participants, and μ is the mean between the two instructional strategies (Kabacoff, 2011). If the null hypothesis is true, but the researcher rejects it, then there is a Type I error or alpha (α) equal to 0.05 also called significance level (Wonnac, 1972).

Data Analysis Procedures

Using the survey results, each school was classified as either providing (1) primarily acceleration or (2) primarily enrichment within the regular classroom; a total of 23 numbered questions were included to identify activities that pertain to each instructional strategy as shown below:

Questions that pertain to acceleration strategies are numbered below.

- Grade-skipping: #15
- Curriculum compacting: # 5, 8, 13, 23;
- Telescoping: #22
- Single-subject mentoring: #10, 14
- Ability grouping in the classroom: # 4

Questions that pertain to enrichment strategies are numbered below.

- Portfolio: # 20
- Cluster grouping by skill level, within and across grade pull-out groups: #6
- Self-designed courses: #11, 19
- Tiered assignments: #12

- Teams of parents, teachers and students, and outside of the curriculum topics: # 2, 3, 16, 18, 21

Questions #1, 5, 9 and 16 are strategies that are used in acceleration and enrichment.

The questions were based on two previous studies by Archambault et al (1993) and Anderson (2006). The following table groups the survey numbered questions in the two categories of curriculum modification: acceleration and enrichment:

Survey Questions that Pertain to Acceleration	*Survey Questions that Pertain to Enrichment*
4. Form homogeneous student groups, based on their developmental age in order to facilitate better learning of a unit	2. Invite parents volunteers to work with GATE students in the classroom 3. Invite members of the community to work with GATE students in the classroom
8. Create learning contracts for individual GATE students	6. Use flexible grouping of like-ability to accommodate different learning levels
10. Allow GATE students to complete teacher-selected independent study projects	7. Provide GATE students use of advanced computer programs
13.Provide GATE students access to advanced study material	11. Allow GATE students the option of completing self-selected independent study projects
14. Recommend GATE students for enrollment in higher grade level course in English-Language Arts	12. Use tiered assignments
15. Recommend GATE students for acceleration beyond the next grade	17. Use the Icons of Depth and Complexity
22. Use grade telescoping	18. Provide GATE students with field trips
23. Use a advanced content text-based material	20. Provide GATE students access to classroom learning centers for two hours daily to complete their talent portfolio
	21. Provide community-centered assessments

Questions 4, 5, 8, 9, 10, 13, 14, 15, 22, and 23 focused on practices used in acceleration and questions 2, 3, 6, 7, 11, 12, 17, 18, 19, 20, and 21 focused on teaching methods used in enrichment.

Questions 1, 5, 9 and 16 were common to each instructional strategies, acceleration and enrichment; they were included in the survey to demonstrate that each district used differentiation to teach their GATE student population in 7th and 8th grades in English-Language Arts.

Survey Questions that Pertain to Acceleration and Enrichment
1. Provide differentiated lessons to attend to the needs of GATE students
5.Use curriculum compacting for GATE students who already know specific content
9. Pre-assess GATE student knowledge of the subject content prior to instruction
16. Work with a team of teachers to develop differentiated lessons

To determine what instructional practices were selected to differentiate instruction in English-Language Arts with GATE students in 7th and 8th grades (research question 1), the researcher used descriptive statistics to report the mean and standard deviation of the responses for each survey question. The responses were grouped by district and teachers' ratings of the instructional strategies they used, formally identified as acceleration and or enrichment.

Data was analyzed using the Statistical Analysis System (SAS) statistical package version 9.2. First, a t-test was used to test the hypothesis that the two means are equal (Kabacoff, 2011). The type of data was appropriate for the t-test. Further, the test was used to determine the significance of the difference between the mean for District A and the mean for District B to answer the second research question:

How do the differentiation instructional practices used to accommodate identified GATE students in regular classrooms align or differ from one district to the other?

The test was performed to determine whether the difference between the instructional practices from one district to the other is statically significant with a 95% confidence interval (Dodge, 2003) (Appendix E).

Then a linear regression model was performed to test the difference between the STAR scores and each school's instructional strategies to answer research question 3: How do Standardized Testing and Reporting (STAR) scores of GATE students who received accommodation as acceleration only compare with STAR scores of GATE students accommodated by enrichment only?

A linear regression model was used because the data was a continuous response (STAR Program scores) and continuous and binary variables. A linear regression worked best with the small number of returned surveys and the large number of questions to first determine whether there was a relationship between the instructional strategy and the STAR Program scores; next, to increase the interpretability of results (Archambault, 1993) by reducing the number of questions to four per instructional strategy. First, the researcher considered the mean responses to each question for each school and performed a regression to model the mean STAR test scores for 7^{th} and 8^{th} grades as a function of School and High Acceleration score. The model was as follows:

STAR Test Score=School + Acceleration
where Acceleration=1 if mean > 2.5. Acceleration=0 otherwise

Next, to relate STAR test scores to each instructional strategy—acceleration or enrichment--, the researcher considered the survey question responses for teachers within the schools. These teacher responses were summarized by averaging the scores of teachers at the schools to obtain an overall school survey response. To preserve confidentiality each school was referred to as a number; for example, each school in

District A was labeled District A 1, District A 2, District A 3, District A 4 (school 5 did not respond), and District B's schools were labeled District B 1, District B 2, District B 3, District B 4, District B 5 (school 6 did not respond). These averages were calculated by taking a simple mean. Missing values were not included into these means (Appendix F). Additionally, two variables have been defined as index measure of acceleration and enrichment to connect these index measures to the STAR Program scores.

Next, the researcher identified four acceleration questions and four enrichment questions on the survey to calculate a mean for each school and yield results. The selected questions were 4, 13, 14, and 23 as index measure of acceleration and questions 6, 11, 12, and 17 as index measure of enrichment as the model shows below:

Instructional Strategy Index Measure

meanAccel=mean(Q4,Q13,Q14,Q23)
meanEnrich=mean(Q6,Q11,Q12,Q17)

Using the linear regression model: STARmean~District + meanEnrich + meanAccel, the researcher considered the correlation between the STAR Program scores per each school and the instructional strategies (Appendix G) to test the effect of the instructional strategies onto STAR Program score using SAS.

The following Likert-type scale containing five positions was used in the survey to measure the differences between instructional practices for GATE identified students:
5= 5 days out of 5 per week or between 80 to 100% of the time if the class meets less than 5 times a week.
4=4 days out of 5 per week or between 60 to 80% of the time if the class meets less than 5 times a week.

3= 3 days out of 5 per week or between 40 to 60% of the time if the class meets less than 5 times a week.

2= 2 days out of 5 per week or between 20 to 40% of the time if the class meets less than 5 times a week.

1=1 day out of 5 per week or between 20% and less of the time if the class meets less than 5 times a week (Appendix C).

Summary

Procedures were used to tabulate the survey data to analyze the districts' instructional strategies used by English-Language Arts' teachers to accommodate their students identified as gifted and talented in 7^{th} and 8^{th} grades, which of the two—acceleration and enrichment—was used in the two districts, and whether or not there was a correlation between the use of one versus the other and the GATE students' STAR scores per district and school. Although the researcher could not identify which teacher taught which student because of specific districts' authorization guidelines to conduct research within the schools, the returned teacher surveys (seven from District A and eleven from District B) permitted to match instructional strategies per school and school districts. Thus, the researcher purported the returned surveys would indicate a trend in acceleration, enrichment, or a combination of both. Using SAS as statistical software, the researcher performed two statistical tests. To determine the trend in instructional strategies, a simple t-test was used; to compare the results of the previous findings with the STAR Program scores, a linear regression model was used.

CHAPTER FOUR: FINDINGS

Introduction

Survey data was collected from the selected two school districts. District A returned seven surveys; District B returned eleven surveys. A statistical analysis was performed using SAS that included, 1) a description of the survey results using descriptive statistics to report the mean and standard deviation of the response for each survey question regarding each instructional practice used to differentiate instruction in English-Language Arts with GATE students in 7th and 8th grades; 2) a t-test to determine how the differentiation instructional practices used to accommodate identified GATE students in regular classrooms align or differ from one district to the other; and 3) a linear regression analysis was done to show STAR Program scores of GATE students who received accommodation as acceleration only compared with STAR Program scores of GATE students accommodated by enrichment. Next, correlation coefficients were calculated to measure the strength of the relationships between the two variables (STAR Program scores and mean acceleration and mean enrichment) using four specific individual questions on acceleration and four specific individual questions on enrichment and STAR Program scores for 7th and 8th grade. A few significant differences for those individual questions were found.

Restatement of the Purpose

The purpose of this study was to examine which of the two instructional practices—acceleration or enrichment-- is more successful in serving the learning needs of middle school students identified as gifted and talented using the prescribed

accommodations outlined within the districts' plans established in 2008-2009 and remain in practice currently.

Research Question One

What instructional practices are used to differentiate instruction in English-Language Arts with GATE students in grades 7 and 8?

GATE Programs in the Selected Middle Schools

District A's GATE program, which is delivered in the middle school during the regular school day, focuses on "accelerating students in the areas of their giftedness" (Appendix D) through part-time grouping in (1) period clusters such as Honors, Advanced Placement (AP), or International Baccalaureate (IB), and (2) team clusters led by two or more GATE certified teachers working as a team. The program includes methodology based on research by Sandra Kaplan, Carol Ann Tomlinson, Joseph Renzulli and Sally Reis (Appendix D). Conversely, District B's program focuses on enrichment by offering "advanced exploratory classes" led by a team of certificated, or working towards certification, GATE teachers in cluster classes during the regular school day (Appendix D). Such cluster classes allow students to "have challenging activities that extend the regular lesson to new and more difficult levels of understanding" (Appendix D). Both districts affirm their belief that GATE education should be part of the regular school day (Appendix D) to accelerate students in their areas of giftedness (District A) or extend the regular lesson to new and more difficult levels of understanding (District B).

Survey Questions: Acceleration, Enrichment, Acceleration and Enrichment

The survey questions were classified as either providing (1) Primarily Acceleration or (2) Primarily Enrichment within the regular classroom; a total of 23

numbered questions were included to identify activities that pertain to 1) acceleration through grade-skipping, # 15; curriculum compacting, # 5, 8, 13, 23; telescoping, #22; single-subject mentoring, #10, 14; and ability grouping in the classroom, # 4, and 2) enrichment through portfolio,# 20; cluster grouping by skill level, within and across grade pull-out groups, #6; self-designed courses,#11, 19; tiered assignments, #12; teams of parents, teachers and students, and outside of the curriculum topics, # 2, 3, 16, 18, 21. Questions #1 and 16 fit in both categories. The questions were based on two previous studies by Archambault et al (1993) and Anderson (2006).

Findings

The survey results were described using Microsoft Office Excel to calculate the mean and standard deviation of the responses for each question (Appendix E).

Questions Responses across Districts and Schools: Acceleration

Survey responses were grouped by district and teachers' ratings formally identified instructional strategies they used as acceleration and or enrichment. A total of twenty three questions were listed in the survey with a Likert scale of 1 through 5, but not all of the questions yielded a response as shown in Table 1.1. A mean of 2.5 was selected because the Likert scale on the survey was 1 to 5.

Question 4: *Form homogenous student groups, based on developmental age, to facilitate better learning of a unit*. The mean for that question was 4.06, which shows that GATE teachers tend to use accelerated differentiated instructional strategy.

Question 8: *Create learning contracts for individual GATE students*. The mean for that question was 1.27, which shows that GATE teachers do not tend to use this accelerated differentiated instructional strategy.

Question 10: *Allow GATE students to complete teacher-selected independent study projects*. The mean for that question was 1.92, which shows that GATE teachers do not tend to use this accelerated differentiated instructional strategy.

Question 13: *Provide GATE students access to advanced study material*. The mean for that question was 3.27, which shows that GATE teachers tend to use this accelerated differentiated instructional strategy.

Question 14: *Recommend GATE students for enrollment in higher grade level courses in English-Language Arts*. The mean for that question was 2.92, which shows that GATE teachers tend to use this accelerated differentiated instructional strategy.

Question 15: *Recommend GATE students for acceleration beyond the next grade*. The mean for that question was 2.55, which shows that GATE teachers tend to use this accelerated differentiated instructional strategy.

Question 22: *Use grade telescoping*. The mean for that question was 1.4, which shows that GATE teachers do not tend to use this accelerated differentiated instructional strategy.

Question 23: *Use advanced content text-based material*. The mean for question for that question was 3.27, which shows that GATE teachers tend to use this accelerated differentiated instructional strategy.

Question Responses across Districts and Schools: Enrichment

Question 2: *Invite parent volunteers to work with GATE students in the classroom*. The mean for that question was 1.93, which shows that GATE teachers do not tend to use this differentiated instructional strategy in enrichment.

Question 3: *Invite members of the community to work with GATE students in the classroom*. The mean for that question was 1.29, which shows that GATE teachers do not tend to use this differentiated instructional strategy in enrichment.

Question 6: *Use flexible grouping of like-ability to accommodate different student learning levels.* The mean for that question was 3.65, which shows that GATE teachers tend to use this differentiated instructional strategy in enrichment.

Question 7: *Provide GATE students use of advanced computer programs*. The mean for that question was 2.71, which shows that GATE teachers tend to use this differentiated instructional strategy in enrichment.

Question 11: *Allow gifted students the option of completing self-selected independent study projects*. The mean for that question was 1.81, which shows that GATE teachers do not tend to use this differentiated instructional strategy in enrichment.

Question 12: *Use tiered assignments*. The mean for that question was 2.75, which shows that GATE teachers tend to use this differentiated instructional strategy in enrichment.

Question 17: *Use the icons of depth and complexity*. The mean for that question was 3.14, which shows that GATE teachers tend to use this differentiated instructional strategy in enrichment.

Question 18: *Provide GATE students with field trips*. The mean for that question was 1.56, which shows that GATE teachers do not tend to use this differentiated instructional strategy in enrichment.

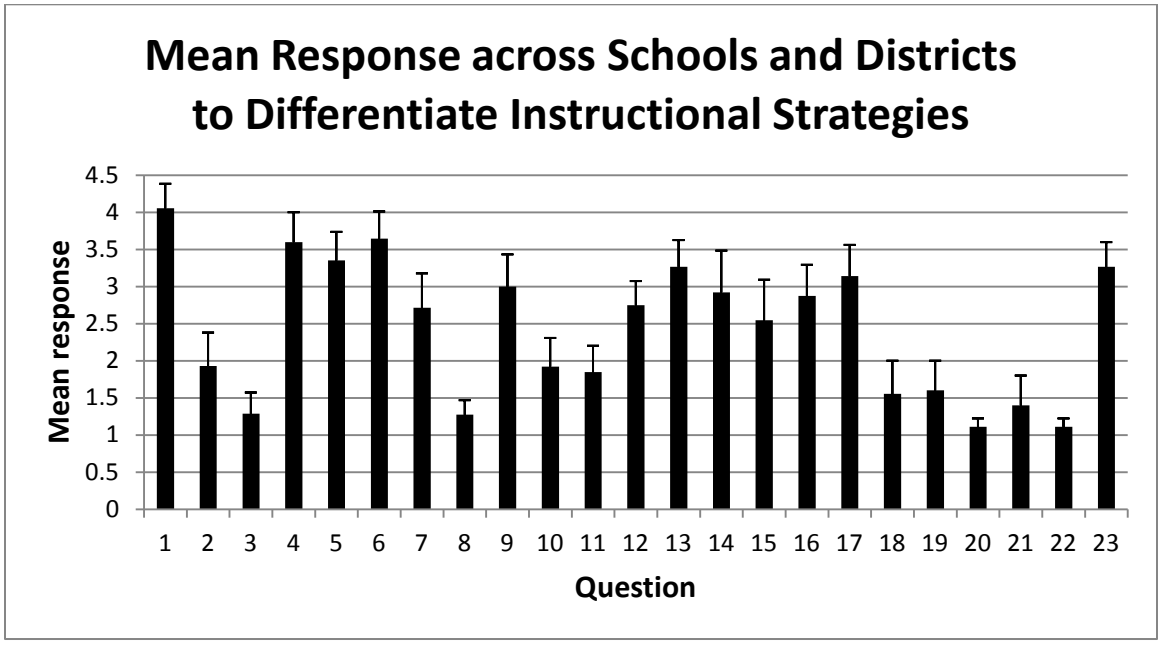
Question 19: *Assist students to self-design their courses*. The mean for that question was 1.6, which shows that GATE teachers do not tend to use this differentiated instructional strategy in enrichment.

Question 20: *Provide GATE students access to classroom learning centers for two hours daily to complete their individual talent portfolio*. The mean for that question was 1.11, which shows that GATE teachers do not tend to use this differentiated instructional strategy in enrichment

Question 21: *Provide community-centered assignments*. The mean for that question was 1.24, which shows that GATE teachers do not tend to use this differentiated instructional strategy in enrichment.

The bar response below shows the mean and standard error of the mean of each question. An overall mean above (>) 2.5 indicates a higher use of the instructional strategy since the Likert scale on the survey was 1 to 5.

Table 1: Mean response across schools and districts



The survey data analysis shows that GATE teachers in both District A and District B tend to use differentiated instructional strategies as the mean responses to questions 1, 4, 5, 6, 7, 9, 12, 13, 14, 16, 17, and 23 indicate. Furthermore, responses indicate a stronger use of acceleration since five out of eight acceleration strategies versus four out of eleven enrichment strategies .have a higher mean.

Research Question Two

How do the differentiation instructional practices used to accommodate identified GATE students in regular classrooms align or differ from one district to the other?

The following table groups the survey numbered questions in the two categories of curriculum modification: acceleration and enrichment:

Questions 4, 5, 8, 9, 10, 13, 14, 22, and 23 focused on practices used in acceleration and questions 2, 3, 6, 7, 11, 12, 17, 18, 19, 20, and 21 focuses on teaching methods used in enrichment.

Table 2 : Survey questions per acceleration, enrichment, and acceleration/enrichment

Survey Questions that Pertain to Acceleration	*Survey Questions that Pertain to Enrichment*
4. Form homogeneous groups based on developmental age to facilitate learning of a unit	2. Invite parents volunteers to work with GATE students in the classroom 3. Invite members of the community to work with GATE students in the classroom
8. Create learning contracts for individual GATE students	6. Use flexible grouping of like-ability to accommodate different student learning levels
10. Allow GATE students to complete teacher-selected independent study projects	7. Provide GATE students use of advanced computer programs
13. Provide GATE students access to advanced study material	11. Allow GATE students the option of completing self-selected independent study projects

14. Recommend GATE students for enrollment in higher grade level courses in English-Language Arts	12. Use tiered assignments
15. Recommend GATE students for acceleration beyond the next grade	17. Use the Icons of Depth and Complexity
22. Use grade telescoping	18. Provide GATE students with field trips
23. Use a advanced content text-based material	20. Provide GATE students access to classroom learning centers two hours daily to complete an individual talent portfolio
	21. Provide community-centered assessments

Questions 1, 5, 9 and 16, which are common to both differentiated instructional methods, are listed to demonstrate that each district uses differentiation to teach their GATE student population in grades 7 and 8 in English-Language Arts.

Survey Questions that Pertain to Acceleration and Enrichment
1.Provide differentiated lessons to attend to the needs of GATE students
5.Use curriculum compacting for GATE students who already know the specific content
9. Pre-assess GATE students' knowledge of the subject content prior to instruction
16. Work with a team of teachers to develop differentiated lessons

Questions Responses by Districts: Acceleration

Survey responses were grouped by district and teachers' ratings formally identified instructional strategies used as acceleration and or enrichment where n is the size of the sample and p-value is the probability or likelihood (Dodge, 2003) that the instructional strategy is being taught. A total of twenty three questions were listed in the survey, but not all of the questions yielded a response.

Question 4: *Form homogeneous groups based on developmental age to facilitate learning of a unit.* The mean for District A was 4.143 (n=7); the mean for District B was 3.125 (n=8). T-Test statistic for difference in two means was 1.33, p-value=0.2065

In conclusion, there is no difference between the districts for this question

Question 8: *Create learning contracts for individual GATE students*. The mean for District A was 1.33 (n=6); the mean for District B was1.2 (n=5). T-Test statistic for difference in two means: 0.34, p-value=0.7405. In conclusion, there is no difference between the districts for this question.

Question 10: *Allow GATE students to complete teacher-selected independent study projects*. The mean for District A was1.5 (n=6); the mean for District B was 2.28 (n=7). T-Test statistic for difference in two means: -1.08, p-value=0.3093. In conclusion, there is no difference between the districts for this question.

Question 13: *Provide GATE students access to advanced study material*. The mean for District A was 3.0 (n=6); the mean for District B was 3.44 (n=9). T-Test statistic for difference in two means: -0.62, p-value=0.54. In conclusion, there is no difference between the districts for this question.

Question 14: *Recommend GATE students for enrollment in higher grade level courses in English-Language Arts*. The mean for District A was 2.33 (n=6); the mean for District B was 3.43 (n=7). T-Test statistic for difference in two means: -0.97, p-value=0.3539. In conclusion, there is no difference between the districts for this question.

Question 15: *Recommend GATE students for acceleration beyond the next grade*. The mean for District A is 2.40 (n=5); the mean for District B is 2.66 (n=6). T-Test statistic for difference in two means: -0.23, p-value=0.8231. In conclusion, there is no difference between the districts for this question.

Question 22: *Use grade telescoping*. The mean for District A is 1.00 (n=5); the mean for District B is 1.25 (n=4). T-Test statistic for difference in two means: -1.14, p-value=0.2924. In conclusion, there is no difference between the districts for this question.

Question 23: *Use a higher grade text-based material*. The mean for District A is 3.00 (n=7); the mean for District B is 3.50 (n=8). T-Test statistic for difference in two means: -0.76, p-value=0.4595. In conclusion, there is no difference between the districts for this question.

Question Responses by District: Enrichment

Question 2: *Invite parent volunteers to work with GATE students in the classroom* The mean for District A is 2.5 (n=6); the mean for District B is 1.5 (n=8). T-Test statistic for difference in two means: 1.11, p-value=0.2895. In conclusion, there is no difference between the districts for this question.

Question 3: *Invite members of the community to work with GATE students in the classroom*. The mean for District A is 1.67 (n=6); the mean for District B is 1.00 (n=8). T-Test statistic for difference in two means: 1.00, p-value=0.363. In conclusion, there is no difference between the districts for this question.

Question 6: *Use flexible grouping of like-ability to accommodate different student learning levels*. The mean for District A is 4.0 (n=7); the mean for District B is 3.4 (n=10). T-Test statistic for difference in two means: 0.86, p-value=0.4019. In conclusion, there is no difference between the districts for this question.

Question 7: *Provide GATE students use of advanced computer programs*.

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The mean for District A is 2.85 (n=7); the mean for District B is 2.57 (n=7). T-Test statistic for difference in two means: 0.30, p-value=0.7707. In conclusion, there is no difference between the districts for this question.

Question 11: *Allow GATE students the option of completing self-selected independent study projects*. The mean for District A is 1.6 (n=5); the mean for District B is 2.0 (n=8). T-Test statistic for difference in two means: -0.60, p-value=0.5612. In conclusion, there is no difference between the districts for this question.

Question 12: *Use tiered assignments*. The mean for District A is 2.57 (n=7); the mean for District B is 2.89 (n=9). T-Test statistic for difference in two means: -0.50, p-value=0.6231. In conclusion there is no difference between the districts for this question.

Question 17: *Use the Icons of Depth and Complexity*. The mean for District A is 3.14 (n=7); the mean for District B is 3.14 (n=7).T-Test statistic for difference in two means: 0.0, p-value=1.00. In conclusion, there is no difference between the districts for this question.

Question 18: *Provide GATE students with field trips*. The mean for District A is1.25 (n=4); the mean for District B is 1.80 (n=5).T-Test statistic for difference in two means: -0.66, p-value=0.5421. In conclusion, there is no difference between the districts for this question.

Question 19: *Assist students to self-design their courses*. The mean for District A is 1.4 (n=5); the mean for District B is 1.8 (n=5).T-Test statistic for difference in two means: -0.48, p-value=0.6454. In conclusion, there is no difference between the districts for this question.

Question 20: *Provide GATE students access to classroom learning centers two hours daily to complete an individual talent portfolio*. The mean for District A is 1.2 (n=5); the mean for District B is1.0 (n=4). T-Test statistic for difference in two means: 0.88, p-value=0.4071. In conclusion, there is no difference between the districts for this question.

Question 21: *Provide community-centered assignments*. The mean for District A is 1.0 (n=5); the mean for District B is 1.8 (n=5).T-Test statistic for difference in two means: -1.0, p-value=0.3466. In conclusion, there is no difference between the districts for this question.

Findings

The responses from the two school districts were not significantly different for the vast majority of the survey questions (Appendix F). Differences were detected only for question 1: District A had a higher mean than District B, and question 9: District B had a higher mean than District A. Beyond these two differences, the districts' responses were quite similar. Further, neither district is strongly acceleration or enrichment based upon a preliminary look at the responses to the survey questions as shown in the table below where ' yes' means a stronger use of the instructional strategy, and 'no' means a lesser use of the instructional strategy:

Table 3: Mean response for each district

Acceleration Questions: Mean Response >2.5?

District	Q4	Q8	Q10	Q13	Q14	Q15	Q22	Q23
A	Yes	No	No	Yes	No	No	No	Yes
B	Yes	No	No	Yes	Yes	Yes	No	Yes

Enrichment Questions: Mean Response >2.5?

District	Q2	Q3	Q6	Q7	Q11	Q12	Q17	Q18	Q19	Q20	Q21
A	No	No	Yes	Yes	No	Yes	Yes	No	No	No	No
B	No	No	Yes	Yes	No	Yes	Yes	No	No	No	No

The table below shows that Districts A and B both have a higher mean for question 1: *Provide differentiated lessons to attend to the needs of GATE students*; District A has a lesser mean for question 9: *Pre-assess GATE students' knowledge of the subject-content prior to instruction* whereas District B has a higher mean for the same question.

Acceleration/Enrichment Questions: Mean Response >2.5?

District	**Q1**	Q5	**Q9**	Q16
A	**Yes**	Yes	**No**	Yes
B	**Yes**	Yes	**Yes**	Yes

Question Responses by School

Sample sizes were very small for each school. A letter was emailed to each district's GATE Coordinator to inquire about the number of GATE teachers per middle school site; District A replied there were 12 GATE teachers per site or a total of 60 teachers; out of the 60 anticipated, 11 surveys were returned. District B did not reply. It is generally not possible to do t- tests as in the case of the districts; in order to do t-tests for each school, multiple t-tests would have to be done (as in 9 schools, 2 at a time) for each question. So for each survey question this would result in 36 t-tests. Also, to do a t-test, some measure of standard deviation is needed. A t-test is appropriate when a comparison is made between two different population means (Dodge, 2003) as in this study the researcher is comparing the means of District A and District B; furthermore, because the sample size was small (District A returned seven surveys and District B returned eleven surveys, so a total of eighteen surveys altogether) the standard deviation or margin of error between the districts was less noticeable in the Likert scale of 1 through 5 used in

the survey. To preserve confidentiality each school was referred to as a number; for example, each school in District A was labeled District A 1, District A 2, District A 3, District A 4 (school 5 did not respond), and District B's schools were labeled District B 1, District B 2, District B 3, District B 4, District B 5 (school 6 did not respond). Another confidentiality measure was taken on the teacher survey; the school names along with the school districts were crossed out (Appendices B and C). These averages were calculated by taking a simple mean. Missing values were not included into these means (Appendix F). An overall mean above (>) 2.5 indicates a higher use of the instructional strategy.

Findings

The researcher concludes that 1) schools 1, 2, 3, and 5 in District B have a higher mean of using acceleration strategies, 2) school 3 in District B has a higher mean of using enrichment strategies, and 3) District A's schools 1, 2, 3, along with District B's schools 1, 3, and 5 have a higher mean of using both acceleration and enrichment strategies as shown in the two tables below where the mean is μ and the noticeable means for each school in acceleration, over 2.5 for a scale of 1 to 5, are in bold (Table 1.3), the noticeable means for each school in enrichment, over 2.5 for a scale of 1 to 5, are in bold (Table 1.4), and the noticeable means for each school in both acceleration and enrichment, over 2.5 for a scale of 1 to 5, are in bold (Table. 1.5).

Table 4: Mean response for each school

Acceleration Questions: Mean Response for each school. Schools in bold have an average mean response μ >2.5. Empty boxes reflect no response

School	μ 4	μ 8	μ 10	μ 13	μ 14	μ 15	μ 22	μ 23	Overall Mean
District B 1	3	1	2	3	3.5	2	1.5	3.5	2.31

District B 1	**5**	**1**	**1**	**5**	**1**	**1**	**1**	**3.5**	**2.56**
District A 1	4.5	2	2	3	3	3	1	2	2.50
District A 3	2.5	1	1.5	2.5	3	2.5	1	3.5	2.14
District B 2	**3**			**4**					**3.33**
District B 3	**4**	**2**	**4.5**	**4**	**3**	**3**		**4.5**	**3.67**
District A 4	5	1		2				3	2.4
District B 4	1	1	1	3	1	1	1	1	1.75
District B 5	**3.5**	**1**	**1**	**3.5**	**5**	**5**	**1**	**3.67**	**2.67**

Enrichment Questions: Mean Response for each school. Schools in bold have an average mean response μ >2.5. Empty boxes reflect no response.

School	μ 2	μ 3	μ 6	μ 7	μ 11	μ 12	μ 17	μ 18	μ 19	μ 20	μ 21	Overall Mean
District B 1	3	1	4.5	3.5	2	2.5	3.5	1	1	1	1	2.18
District A 1	5	1	4.5	5	1	2.5	3	1	1	1	1	2.36
District A 2	1	1	3.5	3	2	3.5	4	1.5	1.5	1.5	1	2.14
District A 3	3.5	3	3.5	1.5	1.5	1.5	3.5	1	1.5	1	1	2.05
District B 2	1	1	4	1		2						1.8
District B 3	**1**	**1**	**5**	**3**	**4**	**4.5**	**4.5**	**5**	**5**		**5**	**3.8**
District A 4	1	1	5	1		3	1					2
District B 4	1	1	1	1	1	1	1	1	1	1	1	1
District B 5	1	1	3	5	1	3	2.5	1	1	1	1	1.86

Acceleration/Enrichment: Mean Response for each school. Schools in bold have an average mean response μ >2.5. Empty boxes reflect no response.

School	μ 1	μ 5	μ 9	μ 16	Overall Mean
District B 1	**4**	**4**	**5**	**2**	**3.75**
District A 1	**5**	**3.5**	**1.5**	**5**	**3.75**
District A 2	**5**	**3**	**3.5**	**4**	**3.88**
District A 3	**5**	**3.5**	**2**	**2**	**3.13**
District B 2	3	1		2	2
District B 3	**5**	**5**	**4.5**	**4**	**4.63**
District A 4	**4**	**5**	**1**	**1**	**2.75**
District B 4	2.33	2.33	1	1	1.67
District B 5	**3.66**	**3**	**3.5**	**2.66**	**3.21**

Research Question Three

How do Standardized Testing and Reporting (STAR) scores of GATE students who received accommodation as acceleration only compare with STAR scores of GATE students accommodated by enrichment only?

STAR Program Scores by District and by School

The STAR Program scores for the two districts' GATE students, tested in 7th and 8th grades respectively, in English-Language Arts indicate a higher score in the advanced level in District B and a higher score in the proficient level for District A. 35 % and 49% of the GATE students scored advanced in District A versus 44% and 60% in District B; 49% and 35% scored proficient in District A versus 45% and 30% in District B (CDE, 2012).

The researcher connected two measures—acceleration and enrichment—to the STAR Program scores for 7th and 8th grades for each school. Survey question responses

for teachers within schools were summarized by averaging the scores of teachers to obtain an overall school survey. These averages were calculated by taking a simple mean. Missing values were not included into these means (Appendix G). The table below shows correlation between the two variables: acceleration and enrichment using Pearson correlation to "assess the degree of linear relationships" (Kabacoff, 2011, p. 160) between the two instructional strategies.

Table 5: STAR Program mean for each instructional strategy

Pearson Correlation Coefficients

	meanAccel	meanEnrich	STAR7	STAR8	STARmean
STAR7	**0.02**	**-0.25**	1.00	0.81	0.96
STAR8	**0.12**	**0.01**	0.81	1.00	0.94
STARmean	**0.07**	**-0.14**	0.96	0.94	1.00

Additionally, two variables were defined as index measures of acceleration using questions 4, 13, 14, and 23, and enrichment using questions 6, 11, 12, and 17 to yield significance.

Table 6: Correlation Coefficients between STAR mean and acceleration and enrichment

Table of Correlation Coefficients (P-value for H_o: correlation=0)

	Q1	Q2	Q3	**Q4**	Q5	Q6
n	9	9	9	**9**	9	9
STARmean	-0.390(.299)	-0.300(.432)	0.151(.697)	**-0.554 (.122)**	-0.093(.811)	-0.280(.466)

	Q7	Q8	Q9	Q10	Q11	Q12
n	8	9	8	7	7	9
STARmean	0.062 (.875)	-0.247 (.555)	0.360 (.381)	0.064 (.892)	0.044 (.925)	-0.097 (.803)

	Q13	**Q14**	**Q15**	Q16	Q17	Q18

n	9	**7**	**7**	9	8	7
STARmean	-.103(.791)	**0.626 (.132)**	**0.562 (.189)**	-0.387(.302)	-0.026(.951)	0.097(.835)

	Q19	**Q20**	Q21	Q22	Q23
n	7	**6**	7	6	8
STARmean	0.115(.805)	**-0.576(.805)**	0.170(.716)	0.175(.741)	0.298(.475)

Findings

Using a linear regression model to predict how the STAR Program scores are related to the instructional strategies acceleration or enrichment, showed no significance for mean acceleration and mean enrichment (0.396 and 0.378 respectively); however, District B was significant (p-value=0.047) indicating that STAR Program scores are higher for District B (Appendix G).

Further, the analysis showed very little correlation between the STAR Program scores for 7^{th} and 8^{th} grades per school and per district and the instructional strategies (Appendix G). The researcher used a regression model with individual correlations between the twenty-three survey questions and the STAR Program scores for each school in each grade 7 and 8. (Appendix G). None of these correlations were significant at the α =0.05 level. The reason for this lack of significance is because overwhelming evidence is set at a higher threshold for small samples such as the ones used for this study: eleven surveys from District B and seven surveys from District A were returned, or a total of eighteen surveys. For instance, a -0.55 correlation would be statistically significant for thirty returned surveys. Questions 4 (Acceleration) and 20 (Enrichment) show that there is a negative relationship between these questions and STAR Program scores whereas questions 14 (Acceleration) and 16 (Acceleration and Enrichment) show that there is a positive relationship between these questions and STAR Program scores for each school

that responded in District A and District B. All of the other question responses indicate no significant correlation between the STAR mean and the instructional strategies used by teachers.

Summary

The survey data analysis shows that GATE teachers in both District A and District B tend to use differentiated instructional strategies as the mean responses to questions 1, 4, 5, 6, 7, 9, 12, 13, 14, 16, 17, and 23 indicate; however, there is not much difference in the instructional strategies used across the districts. The responses from the two school districts were not significantly different for the vast majority of the survey questions to answer the first research question. Regarding the second research question, differences were detected for question 1 and question 9, which are instructional strategies used in both acceleration/enrichment, where District A has a higher mean than District B –question1- and District B has a higher mean than District A-question 9. Conversely, the statistical test shows that 1) schools 1, 2, 3, and 5 in District B have a higher mean of using acceleration strategies, 2) school 3 in District B has a higher mean of using enrichment strategies, and 3) District A's schools 1, 2, 3, along with District B's schools 1, 3, and 5 have a higher mean of using both acceleration and enrichment strategies. Further, the researcher's attempt to pull out individual teacher responses that lean more towards acceleration or enrichment to answer the third research question yielded no results since it was not possible to isolate the STAR Program scores associated with those teachers due to confidentiality. However, an attempt was made to pull out individual schools that lean more towards either instructional practice. Thus, to increase the interpretability of results, the researcher limited the selection of 23 survey questions to

four questions specifically on acceleration and four questions specifically on enrichment as in Q4, Q13, Q14, Q23, and Q6, Q11, Q12, Q17 respectively. No compelling results for the regression analysis were found.

CHAPTER FIVE: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

GATE students in the middle school depend on their teachers' classroom practices to be served in their area of giftedness. Research has shown that middle school teachers rely on traditional methods of instruction to deliver the district curriculum and the strategies that incorporate learning contracts, tiered assignments, advanced organizers, computer programs focusing on basic skills or advanced understanding, curriculum compacting, learning centers, flexible grouping, or interest centers" are still unused (Moon et al, 2002, p.27). Districts' GATE curriculum plans approved by the California Department of Education are designed to meet the needs of students identified as gifted and talented in categories such as "intellectual, creative, specific academic or leadership ability; high achievement; and performing and visual arts talent" (CDE, 2005, p.9). The two selected districts have a long history of established GATE programs. Their GATE plan applications purport to be using the latest methodology in differentiated instruction. This study found that GATE students in middle schools in two southern California public school districts are receiving accommodations through their school GATE programs. Teachers in both districts reported using differentiated instruction through a variety of strategies mandated by the State Board of Education, stated in the school districts' program application to the California Department of Education, and recommended by experts in gifted and talented education. However, the study did not find much difference in the instructional strategies across districts; furthermore, no significant correlation between the use of either acceleration or enrichment and the STAR Program scores was detected between the schools of the two districts.

The researcher posited that GATE teachers would use differentiated instructional strategies in the middle school classroom that enable GATE identified students to fully develop their potential and tested the null hypothesis:

There is no significant difference between the two instructional strategies, acceleration or enrichment, and the development of GATE students' potential (Creswell, 2009).

This study was designed to address three research questions:

1. What instructional practices are used to differentiate instruction in English-Language Arts with GATE students in grades 7 and 8?
2. How do the differentiation instructional practices used to accommodate identified GATE students in regular classrooms align or differ from one district to the other?
3. How do Standardized Testing and Reporting (STAR) scores of GATE students who received accommodation as acceleration only compare with STAR scores of GATE students accommodated by enrichment only?

Conclusions

Research Question One

What instructional practices are used to differentiate instruction in English-Language Arts with GATE students in grades 7 and 8?

The results of this study indicate that teachers of GATE students of English-Language Arts in 7^{th} and 8^{th} grades make provision mandated by the districts to accommodate the GATE students in the regular classroom and use some of the instructional practices listed in the survey to differentiate instruction. These instructional practices, ranging from approaches that pertain to acceleration to approaches that pertain to enrichment, were listed in a web link forwarded to teachers of GATE students. The

analysis of data shows a mean above 2.5, which indicates a higher use of the instructional strategies that pertain to acceleration such as learning contracts for individual GATE students (Q8), allowing GATE students to complete teacher-selected independent projects (Q10), grade telescoping (Q22), advanced-content material (Q23) as well as a higher use of the instructional strategies that pertain to enrichment such as flexible grouping of like-ability to accommodate different student learning levels (Q6), advanced computer programs for GATE students (Q7), tiered assignments (Q12), and the icons of depth and complexity (Q17).

Research Question Two

How do the differentiation instructional practices used to accommodate identified GATE students in regular classrooms align or differ from one district to the other?

The analysis of data indicates that there is no significant difference between the two districts for the vast majority of the survey questions. Differences were detected for two questions only. District A shows a higher use of providing differentiated lessons to attend to the needs of GATE students (Q1), and District B shows a higher use of pre-assessing GATE students' knowledge of the subject content prior to instruction (Q9). The latter question, Q9, focuses on the assessment aspect of GATE instruction prior to selecting an instructional method to ensure the curriculum is adapted to the students' needs.

Research Question Three

How do Standardized Testing and Reporting (STAR) scores of GATE students who received accommodation as acceleration only compare with STAR scores of GATE students accommodated by enrichment only?

The GATE programs in the selected school districts are delivered through "accelerating students in the areas of their giftedness" or acceleration in District A and through "advanced exploratory classes" or enrichment in District B (Appendix D). No real significance was found between the use of acceleration and enrichment on the STAR Program scores at the school level.

Implications for Practice

The current study is important because it considers two strategies used by school districts to serve GATE students: acceleration, which uses the school curriculum structure to move students up in a higher grade or subject of strength, and enrichment, which consists of in-depth activities within the same grade level. The analysis provides teachers, administrators, and parents with evidence that differentiated instruction in the GATE program is used to serve the GATE students of the middle school in 7^{th} and 8^{th} grades through acceleration and enrichment strategies across the districts and across the schools.

Districts, as stated in their GATE plans, should rely on research findings in acceleration and enrichment to accommodate GATE students within the regular classroom and encourage the use of a wide variety of differentiated instructional strategies provided through a selection of material, content, and projects designed specifically for GATE students in the middle school.

Implications for Research

Districts' Choices

The findings were surprising. Specific instructional strategies which support acceleration and enrichment appeared to be underused. In acceleration, for instance, both districts' teachers did not tend to create learning contracts for individual GATE students

to allow students to complete teacher-selected independent study projects or did not tend to use grade-telescoping. In enrichment, teachers tended to not invite parent volunteers or members of the community to work with GATE students in the classroom, allow gifted students the option of completing self-selected independent study projects, provide GATE students with field trips, assist students to self-design their courses, use learning centers to complete talent portfolio, or provide community-centered assignments.

Although the state mandates provisions for a multiple array of identification tools, the annual evaluation of each districts' GATE program, however, is based on the students' scores on the STAR Program along with questionnaires and criterion-referenced tests, and teachers' feedback (CDE, 2005).Thus, one poses the question whether the State Legislation determines the districts' GATE Programs (Winner, 197) and further, the choice of instructional strategies towards acceleration as this ensures 1) an alignment with the state current policies, and 2) a measurable variable of the content standards mastery.

Districts should rely on up-to-date research to select a curriculum model. Although the concept of democratic public education is challenged by the elitist concept of gifted and talented (Winner, 1997), research shows that curriculum models such as the Renzulli Schoolwide Enrichment Model SEM are less elitist since they identify a larger percentage of gifted and talented students (Van Tassel-Baska, 2007), and therefore could be used by districts to identify a broader GATE student population.

Finally, leadership to implement an evidence-based GATE curriculum is essential to ensure a strong implementation of the program through communication from the base (classroom) up (district) and vice versa (Van Tassel-Baska, 2007) in a cohesive approach.

Funding and Training

Funding to provide enrichment is a factor in the two districts' decisions on acceleration over enrichment. With a GATE budget of $2,500 per year and per student, districts are selecting budget priorities that adhere to the state guidelines. The minimum standards for GATE state that differentiated curriculum should be "supported by appropriate materials and technology" (CDE, 2005, p.26) where computer programs such as Accelerated Reader cost less to serve the entire GATE population or the non-identified high achievers in the classroom, but a field trip to a museum is an extra expense that requires additional staffing and parental volunteering. Paradoxically, minimal funding should emphasize volunteering of parents and members of the community within the regular classroom; their involvement in the classroom, with teachers and students at the school level, and in the planning of the GATE Program with a focus on topics outside the curriculum should also a point to investigate in further research.

Funding is necessary to buy material such as books and software for the gifted and talented, but additional resources should be set aside to allow for long-term up-to-date materials and technical assistance as follow-up development is necessary to ensure the continuity of the implementation of the program through the grades (Van Tassel-Baska, 2007).

Further studies should examine teachers' training in enrichment instructional strategies as a factor in the choice of instructional practices for GATE students in English-Language Arts in the regular classroom. A district's philosophy in the form of a mission statement would guide teachers in selecting which instructional practice is in agreement with their district's GATE Program's philosophy to deliver differentiated

instruction to GATE students within the regular classroom. This study shows teachers do not tend to provide GATE students access to classroom learning centers for two hours daily to complete their individual portfolio (Q 20), strategy in which English-Language Arts teachers also reported feeling less competent in a previous study (Moon, 2002). Expertise with student portfolios should be considered as part of teacher training in enrichment, all the more so since GATE teachers in the middle school are working in teams, thus providing depth and complexity in the GATE students' work across the grades. Further research should consider a qualitative element in the form of an interview of GATE teachers to clarify which method, acceleration or enrichment, is their preferred choice, as well as the allocation of time and resources spent for GATE students in 7th and 8th grades.

Training of Teachers in Enrichment

The analysis showed a trend in recommending GATE students for enrollment in higher grade level courses in English-Language Arts (Q16) and working with a team of teachers to develop differentiated lessons (Q16). A previous study reported on the factors that affect how teachers differentiate instruction: the lack of planning time, "budget restrictions", "the range of academic diversity in the classroom," and classroom management (Moon, 2002, p.42). Interestingly, teachers in Moon's study reported school schedule does not have any effect but rather control over the content taught, flexibility in the choice of instructional strategies and liberty to select the ones in agreement with their own philosophy, lead teachers to focus on interactive instruction or hands-on learning such as projects and real-life applications (Moon, 2007).

This analysis shows that teachers do differentiate and are knowledgeable about the differentiation instructional strategies such as the icons of depth and complexity; however, one ponders whether teachers' training "emphasizes the importance of the supporting theories behind the strategies" (Marotta-Garcia, 2011, p.147) and whether the workshops and trainings provided by the districts focus more on a patchwork of best practices as the end products rather than the theories that support the instructional strategies as a whole (Marotta-Garcia, 2011).

Research shows that several curriculum models designed by experts, which are available for school districts for a cost, have been effective in providing for the needs of the GATE population. The curriculum models have a training package for school and district administrators on how to teach the differentiated curriculum, assess student progress, and enrich the curriculum material as well as how to advocate the model to parents (Van Tassel-Baska, 2007). Selecting a curriculum model based on proven effectiveness would ensure continuity of instructional strategies and the certainty that the prescribed curriculum is taught according to the theory by using the teacher's guide and assessment tools.

Parental Perspective on Acceleration

Further discussion on the parental perspective of acceleration as possibly the preference is needed. The study shows that GATE teachers do not tend to invite parent volunteers to work with GATE students in the classroom, which is an enrichment practice, but tend to recommend GATE students for enrollment in higher grade level courses in English-Language Arts (Q 14) and recommend GATE students for acceleration beyond the next grade (Q 15), which are acceleration practices.

Parents' views on their school's GATE Program may be based on the training they receive at the district and school levels. The districts' plans ensure parents' involvement in the planning of the GATE Program through a GATE advisory committee, "trainings and workshops, and meetings that deal with all aspect of their children" (Appendix D).Other levels of parental participation at the school level consist of serving on 1) the School Site Council (SSC) that approves the school plan and the GATE budget; 2) the English Learners Advisory (ELAC) Committees; and 3) GATE Parent Orientation to meet teachers and inquire about the program (Appendix D). To encourage non-native speakers' participation on the above committee and committee meetings, translators assist ELL GATE parents during the meetings and training session.

Asking whether parent education and socio-economic are factors that shape parents' views on their school GATE Program should be included in further discussion about acceleration as parents' preferred choice. The average level of a GATE parent education is 2.95 (of 5 where a 1 is not a high school diploma and a 5 is graduate school), (Appendix D). When the graduation rate is low, 60% in District A, (Appendix D) it can be argued that parents are more accepting of teachers' acceleration practices, as shown by the teachers' responses to Q14 and Q15, over enrichment as shown by the teachers' responses Q12, to ensure their children graduate quickly using a public, free educational system. Acceleration may be more economical for parents to move their children up without having to pay for extra expenses (Colangelo et al, 2004) such as field trips, camps, or without having to involve their time in after-school activities.

Districts' Considerations of the Profile of the GATE Student

The GATE populations in the two districts are representative of the overall student population with a high percentage of Hispanics, 62% of GATE students on Free and Reduced lunch, and 26% of the student population as ELL (Appendix D). Socio-economic considerations, budget restrictions, school boards' influential political beliefs are instrumental in the selection of options for serving the GATE population.

Contextualization. Districts should consider research findings on enrichment that points at "contextualizing" or "creating a community-centered learning environment" (Maker, 2005 p.23) to ensure the school GATE program is compatible with the students' cultural characteristics and practices.

Influence of the school schedule on GATE students' achievement. Additional light should be shed on the effect of customizing a school schedule to provide for each gifted and talented student's needs (Callahan et al). This study focused on instructional strategies delivered within the regular classroom and their frequency. The number of gifted students in the classroom should be a noted parameter for further research as the level of interaction, if any, because sometimes the gifted student may be the only one in the classroom and thus becomes bored due to lack of challenging activities (Winner, 1997). Studies show that parental involvement has a positive impact on their gifted and talented child's achievement and well-being at school (Callahan et al, 2004). Further studies should consider the type of involvement parents of GATE students undertake in the middle school. Qualitative research describes cases of parents that work with the school to meet their GATE child's needs by meeting with the middle school principal prior to the beginning of school to individualize a schedule that best meets the needs of their child (Callahan et al, 2004, p.39).

The evidence gathered in studies indicates that summer programs for the gifted and talented motivate students to succeed when school resumes as they not only focused on academics but on "units not found in the regular school program" (Delcourt et al, 1994, p.94).

Influence of the environment on GATE students' motivations. Further research should consider the effect the school environment has on GATE students' learning The middle school student is easily bored with "conventional academic subjects" but is "intensely curious" about the world, enjoys "active over passive learning experiences," and "prefers interaction with peers during learning activities" (NMSA, 2007, para. 9, 10). Gifted and talented students who score high on an IQ test are identified as high-ability learners; they are thus placed in an advanced class with older students or students who are not GATE identified with no curriculum modification, such classes are taught by teachers who have no training in GATE accommodation (Moon, 2010, Westberg, et al, 1993). Experts in giftedness believe that there are differences not only in areas of giftedness but also in the degree of giftedness; a score of 130-150 on an IQ test shows moderate giftedness whereas a score of 180 or above shows profound giftedness (Moon, 1997). When little to no intellectual stimulation exists, "school may be an even greater stressor for the gifted adolescent" (Callahan et al, 2004, p.3) who often lacks the emotional level of maturity of other students and lead to the loss of potential. This study selected three categories of identifications as selected by the two districts' GATE plans. Researchers agree that giftedness manifests itself in terms of high ability, task commitment, and creativity (Renzulli, 1998), and that "gifted children also may possess a combination of intellectual giftedness in one area and learning disability in

another" (Winner, 1997, p. 1073) that may hinder their participation in a program focused on high academic performance.

Influence of the school environment on GATE students' behavior. Studies show that gifted and talented students are often "ostracized" (p.1070) for being different (Winner, 1997, Silverman, 1993a, 1993b) and that 67% of GATE students have been subjected to some form of bullying in 8th grade ((Peterson et al, 2006). GATE students in the middle school react to being bullied by "doing better" (Peterson and al, 2006, p.261) academically and silencing themselves in the classroom as they "cut back on raising [their] hand when no one knew the answer" (p.261) or retreat to the computer as a means to cope with difficult peer-interactions in the classroom (Callahan, 2004). Even though studies show no decline in academic success in GATE students who were bullied, researchers note that the experience affects self-esteem and creativity (Peterson et al, 2006; Rodkin and Hodges, 2003); therefore, schools' bullying prevention programs should be taken into consideration as a possible variable to analyze whether GATE programs are successful.

STAR Testing to Evaluate Success

This study invites to ask questions about the adequacy of STAR Program scores to measure GATE students' learning progress in 7th and 8th grades while in the program since the same tool is used to identify students for entrance in the GATE Program. The results of the STAR Program are also used to determine the Academic Performance Index (API) of public schools in California as well as the entire student population's proficiency in content standards. The GATE student in the middle school is easily bored

with “conventional academic subjects” but is “intensely curious” (NMSA, 2007, para. 9, 10).

The analysis showed very little correlation between the STAR Program scores for 7^{th} and 8^{th} grades per district and the instructional strategies used by teachers in the classroom. Further discussion is needed about the role STAR Program scores play in assessing GATE students’ learning in the middle schools and whether STAR scores are an accurate tool to measure GATE students’ learning and the instructional strategies employed by teachers in the regular classroom. Furthermore, the regression analysis indicates there is a negative relationship between acceleration question 4 (form homogeneous student groups based on their development age in order to facilitate better learning of a unit) and enrichment question 20 (provide students access to classroom learning center for two hours daily to complete their individual talent portfolio) and STAR Program scores.

A measuring tool to monitor GATE students’ progress in the GATE program’ specific contents is needed as the gifted and talented students’ learning cannot be measured by tools that merely assesses the learning of the core curriculum. Some researchers purport the use of curriculum modifications or curriculum-based measurement to evaluate GATE students’ learning and are concerned “that using a curriculum designed for gifted learners may not prepare students for these state tests” (Van Bassel-Taska et al, 2007).

Moreover, teachers’ views on standardized tests confirm variables such as the student’s health, socio-economic, attendance, level of poverty, ELL, family support or lack thereof are not factored in the tests (Moon, 2007). Hence, teachers prefer

throughout-the-year assessments both informal (conversation with the student, for instance) as well as formal, to assess GATE students' learning in cooperation with a team of teachers (Moon, 2007).

Null Hypothesis

There is no significant difference between the two instructional strategies, acceleration or enrichment, and the development of GATE students' potential (Creswell, 2009) where the null hypothesis is H_o, n is the number of participants, and μ is the mean between the two instructional strategies (Kabacoff, 2011). If the null hypothesis is true, but the researcher rejects it, then there is a Type I error or alpha (α) equal to 0.05 also called significance level (Wonnac, 1972).

The null hypothesis was accepted because the data showed no significant difference between the two instructional strategies, acceleration or enrichment, and the GATE students' STAR Program scores. Parents' perspectives could be collected in the form of a survey to replicate the study. Further studies should explore the relationships between the parents' perspectives on their child's GATE program and the use of the two instructional strategies, acceleration or enrichment, as an added variable.

The fact the study shows very little indication that instructional support, in terms of a specific delivery model, makes little to no difference in students' academic success as indicated by their achievement scores should alert future researchers that instruction is not the most significant factor in serving GATE students and that additional parameters such as the influence of the environment, both home and the school structure, should to be considered as variables. For instance, a variable of parents' involvement in and beliefs

about GATE in the middle schools should be employed in further research to determine whether they are a factor in their child's academic achievement.

Recommendations

The survey results indicate that teachers use instructional strategies that pertain to acceleration and enrichment across the selected districts and across the middle schools. There is great variation in the use of the two strategies to accommodate the GATE students in the regular classroom. Although the analysis detected a trend in the use of specific strategies, it is not clear as to which specific model of instructional strategies, acceleration or enrichment, is preferred in each English-Language Arts classroom. To clarify their choice of instructional strategies, GATE teachers should evaluate GATE students' knowledge of the material in the form of a pre-assessment to determine what is best suited to move the students at their own pace and according to their ability in the subject matter (Van Tassel-Baska, 2003).

Further, since both districts' GATE programs are delivered within the regular classroom, the school districts and GATE teachers of English-Language Arts in 7th and 8th grades must differentiate the curriculum through a selection of materials that serve the specific needs of GATE students and allow GATE students to move in the curriculum at their own pace with flexible grouping. Advanced-content text material must be carefully selected with regards to advancing the needs of the GATE students. This will be a financial burden on public school districts as they will need to purchase text-based material specifically for GATE students since research shows that basic course material is not challenging enough (Van Tassel-Baska, 2003).

Standardized tests such as the STAR Program, because they are administered indiscriminately to a mixed population of GATE students as well as to non GATE students, do not provide a clear assessment of GATE students' proficiency levels in academic content areas and should not therefore be considered as the main method of identification for students to enter a GATE Program. Research interestingly points out that for GATE students, curriculum modifications (Gardner, 2002) as well as "curriculum-based identification" (Van Tassel-Baska, 2003, p.1078) are likely to increase GATE students' scores on standardized tests. Discussion among districts and GATE teachers about curriculum modifications that aim at in-depth solid foundations rather than STAR Program scores is needed to assist GATE students in 7th and 8th grades.

The focus of the study was to determine (1) what instructional practices were used to differentiate instruction in the selected districts' middle schools; (2) how the differentiated instructional practices aligned or differed from one district to the other, and (3) how the Standardized Testing and Reporting (STAR) scores of GATE students who received accommodation as acceleration only compared with STAR scores of GATE students accommodated by enrichment only.

A survey, sent to teachers of English-Language Arts in the nine middle schools of the two selected districts, comprised twenty-three questions that pertained to instructional strategies used in acceleration and enrichment. The survey statistical analysis per district indicated the responses from the two districts were not significantly different for the vast majority of the survey questions. Both districts tend to use differentiated instructional strategies as the responses to the survey questions indicate, but overall, there is not much difference in the instructional strategies across the districts.

However, the survey statistical analysis per school indicated a trend in the use of acceleration in four schools in one district and a trend in the use of both acceleration and enrichment strategies in three schools in each of the two districts. Finally, the analysis showed little correlation between the STAR scores per school and district.

The statistical results bring to light that meeting the needs of the GATE students in English-Language Arts in 7th and 8th grades, as addressed in the selected middle school, does not support one method, acceleration, over the other, enrichment. The teachers in the middle school sample, while using provisions based on the state mandates and their district's GATE plan, accommodate students' needs using a low percentage of the instructional strategies listed in the survey. Despite showing that teachers of the selected districts used differentiated instruction within the regular classroom to accommodate GATE students in English-Language Arts in the middle schools, the results indicated there was no clear preference for acceleration or enrichment, and that the STAR scores of GATE students per district and per school were not correlated to the use of such strategies.

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APPENDIX A

Letter of Consent to Middle School Principals

Dear Administrator:

I am a doctoral student at Argosy University of Inland Empire, Ontario. As part of my research in the area of gifted and talented education and the use of differentiated activities-acceleration and enrichment- in middle schools, I am surveying teachers' instructional practices for GATE identified students in several middle schools. Your middle school was selected to participate in the survey because of the comprehensive GATE plan your school district submitted to the California Department of Education.

Since feedback from teachers is essential to my research, I am seeking your permission to distribute the surveys attached to teachers of GATE students on your campus to collect data; at no time will the name of teachers and schools be identified nor used in the research. The only person having access to teachers' names is your site GATE coordinator.

If you have any questions about this study, please email me at monicakhalaj@gmail.com and/or call my advisor, Dr. Elizabeth Archambault at earchambault@argosy.edu

The Internal Review Board requires the consent of the participants in this study. Please sign your consent with full knowledge of the nature and purpose of the procedures.

_____ _____

Signature of Participant Date

Thank you for your assistance.
Sincerely,

Monica Khalaj
Doctoral Candidate
Argosy University

APPENDIX B

Letter of Consent to District A GATE Coordinator

Dear GATE Coordinator:

I am a doctoral student at Argosy University of Inland Empire, Ontario. As part of my research in the area of gifted and talented education and the use of differentiated activities-acceleration or enrichment- in middle schools, I am surveying teachers' instructional practices in English Language Arts for GATE identified students in several middle schools. Your middle school was selected to participate in the survey because of the comprehensive GATE plan your school district submitted to the California Department of Education.

Since feedback from teachers is essential to my research, I am seeking your cooperation to distribute the surveys in the link above to teachers of GATE students in English Language Arts in grades 7 and 8 on your campus to collect data; at no time will the name of teachers or schools be identified nor used in the research.

If you have any questions about this study, please email me at monicakhalaj@gmail.com and/or my advisor, Dr. Elizabeth Archambault at earchambault@argosy.edu.

The surveys, which are distributed and returned electronically, should take teachers fifteen minutes to complete.

Please indicate the number of GATE teachers per middle school. At no time will the name of teachers or schools be identified nor used in the research.

Frxxxxx	Kuxxxx
Jexxx	Rixxx
Koxx	

The Internal Review Board requires the consent of the participants in this study. Please sign your consent with full knowledge of the nature and purpose of the procedures.

_____ _____

Signature of Participant Date

Thank you for your assistance.
Sincerely,

Monica Khalaj
Doctoral Candidate Argosy University

Letter of Consent to District B GATE Coordinator

Dear GATE Coordinator:

I am a doctoral student at Argosy University of Inland Empire, Ontario. As part of my research in the area of gifted and talented education and the use of differentiated activities-acceleration or enrichment- in middle schools, I am surveying teachers' instructional practices in English Language Arts for GATE identified students in several middle schools. Your middle school was selected to participate in the survey because of the comprehensive GATE plan your school district submitted to the California Department of Education.

Since feedback from teachers is essential to my research, I am seeking your cooperation to distribute the surveys in the link above to teachers of GATE students in English Language Arts in grades 7 and 8 on your campus to collect data; at no time will the name of teachers or schools be identified nor used in the research.

If you have any questions about this study, please email me at monicakhalaj@gmail.com and/or my advisor, Dr. Elizabeth Archambault at earchambault@argosy.edu.

The surveys, which are distributed and returned electronically, should take teachers fifteen minutes to complete.

Please indicate the number of GATE teachers per middle school. At no time will the name of teachers or schools be identified nor used in the research.

Laxxxxx Middle School	Suxxxxxxx Middle School
Moxxxxxxxxxx Middle School	Vixxxxxxxxxx Middle School

The Internal Review Board requires the consent of the participants in this study. Please sign your consent with full knowledge of the nature and purpose of the procedures.

_____ _____

Signature of Participant Date

Thank you for your assistance.
Sincerely,

Monica Khalaj
Doctoral Candidate
Argosy University

APPENDIX C

Teacher Survey A

Dear Teacher: The purpose of this research study is to examine differentiated instructional practices: -acceleration or enrichment- for GATE identified students in the regular classroom in middle schools. By completing and turning in this survey, you are giving your consent for the researcher to include your responses in the data analysis. Your participation in this research study is strictly voluntary, and you may choose not to participate without fear of penalty or any negative consequences. Individual responses will be treated confidentially. No individually identifiable information of survey participants will be disclosed or published, and all results will be presented as aggregate data. If you wish, you may request a copy of the results of this research after completion of the study, by writing to the researcher at monicakhalaj@gmail.com

This survey should take about fifteen minutes to complete.
Please return it by August 31, 2012

Thank you for your participation.

Teacher Survey

Please circle the number that identifies your middle school. At no time will the name of teachers or schools be identified nor used in the research.

1= Frxxxxx Middle School; 2= Jexxx Middle School; 3=Koxx Middle School;

4= Kuxxxx Middle School; 5= Rixxx Middle School

Please circle the ratings that best describe your school's GATE instructional practices used to accommodate the GATE students.

5= 5 days out of 5 per week or between 80 to 100% of the time if the class meets less than 5 times a week.

4=4 days out of 5 per week or between 60 to 80% of the time if the class meets less than 5 times a week.

3= 3 days out of 5 per week or between 40 to 60% of the time if the class meets less than 5 times a week.

2= 2 days out of 5 per week or between 20 to 40% of the time if the class meets less than 5 times a week.

1=1 day out of 5 per week or between 20% and less of the time if the class meets less than 5 times a week.

1. Provide differentiate lessons to attend to the needs of GATE students	1	2	3	4	5
2. Invite parent volunteers to work with GATE students in the classroom	1	2	3	4	5
3. Invite members of the community to work with GATE students in the classroom	1	2	3	4	5
4. Form homogeneous student groups, based on their developmental age, in order to facilitate better learning of a unit	1	2	3	4	5
5. Use curriculum compacting for GATE students who already know specific content	1	2	3	4	5
6. Use flexible grouping of like-ability to accommodate different students learning levels	1	2	3	4	5
7. Provide GATE students use of advanced computer programs	1	2	3	4	5
8. Create learning contracts for individual GATE students	1	2	3	4	5
9. Pre-assess GATE students' knowledge of the subject content prior to instruction	1	2	3	4	5
10. Allow GATE students to complete teacher selected independent study projects	1	2	3	4	5
11. Allow GATE students the option of completing self-selected, independent study projects	1	2	3	4	5
12. Use tiered assignments	1	2	3	4	5
13. Provide GATE students access to advanced study material	1	2	3	4	5
14. Recommend GATE students for enrollment in higher grade level courses in English–Language Arts	1	2	3	4	5
15. Recommend GATE students for acceleration beyond the next grade level	1	2	3	4	5
16. Work with a team of teachers to develop					

differentiated lessons	1	2	3	4	5
17. Use the Icons of Depth and Complexity	1	2	3	4	5
18. Provide GATE students with field trips	1	2	3	4	5
19. Assist students to self-design their courses	1	2	3	4	5
20. Provide student access to classroom learning center two hours daily to complete their individual talent portfolio	1	2	3	4	5
21. Provide community-centered assessments	1	2	3	4	5
22. Use grade telescoping	1	2	3	4	5
23. Use advanced content text-based material	1	2	3	4	5

Teacher Survey B

Dear Teacher: The purpose of this research study is to examine differentiated instructional practices-acceleration or enrichment- for GATE identified students in the regular classroom in middle schools. By completing and turning in this survey, you are giving your consent for the researcher to include your responses in the data analysis. Your participation in this research study is strictly voluntary, and you may choose not to participate without fear of penalty or any negative consequences. Individual responses will be treated confidentially. No individually identifiable information of survey participants will be disclosed or published, and all results will be presented as aggregate data. If you wish, you may request a copy of the results of this research after completion of the study by writing to the researcher at monicakhalaj@gmail.com

This survey should take about fifteen minutes to complete.
Please return it by September 15, 2012

Thank you for your participation.

Teacher Survey

Please circle the number that identifies your middle school. At no time will the name of teachers or schools be identified nor used in the research.

1= Laxxxxxx Middle School; 2= Moxxxxxxxxxx Middle School; 3= Suxxxxxxx Middle

School; 4= Vixxxxxxxxxx Middle School

Please circle the ratings that best describe your school's GATE instructional practices used to accommodate the GATE students.

5= 5 days out of 5 per week or between 80 to 100% of the time if the class meets less than 5 times a week.

4=4 days out of 5 per week or between 60 to 80% of the time if the class meets less than 5 times a week.

3= 3 days out of 5 per week or between 40 to 60% of the time if the class meets less than 5 times a week.

2= 2 days out of 5 per week or between 20 to 40% of the time if the class meets less than 5 times a week.

1=1 day out of 5 per week or between 20% and less of the time if the class meets less than 5 times a week.

1. Provide differentiated lessons to attend to the needs of GATE students	1	2	3	4	5
2. Invite parent volunteers to work with GATE students in the classroom	1	2	3	4	5
3. Invite members of the community to work with GATE students in the classroom	1	2	3	4	5
4. Form homogeneous student groups, based on their developmental age, in order to facilitate better learning of a unit	1	2	3	4	5
5. Use curriculum compacting for GATE students who already know specific content	1	2	3	4	5
6. Use flexible grouping of like-ability to accommodate different students learning levels	1	2	3	4	5
7. Provide GATE students use of advanced computer programs	1	2	3	4	5
8. Create learning contracts for individual GATE students	1	2	3	4	5
9. Pre-assess GATE students' knowledge of the subject content prior to instruction	1	2	3	4	5
10. Allow GATE students to complete teacher selected independent study projects	1	2	3	4	5
11. Allow GATE students the option of completing self-selected, independent study projects	1	2	3	4	5
12. Use tiered assignments	1	2	3	4	5
13. Provide GATE students access to advanced study material	1	2	3	4	5
14. Recommend GATE students for enrollment in higher grade level courses in English–Language Arts	1	2	3	4	5
15. Recommend GATE students for acceleration beyond the next grade level	1	2	3	4	5
16. Work with a team of teachers to develop					

differentiated lessons	1	2	3	4	5
17. Use the Icons of Depth and Complexity	1	2	3	4	5
18. Provide GATE students with field trips	1	2	3	4	5
19. Assist students to self-design their courses	1	2	3	4	5
20. Provide student access to classroom learning center two hours daily to complete their individual talent portfolio	1	2	3	4	5
21. Provide community-centered assessments	1	2	3	4	5
22. Use grade telescoping	1	2	3	4	5
23. Use advanced content text-based material	1	2	3	4	5

APPENDIX D

Districts' GATE Program Applications References

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APPENDIX E

Mean Response across Districts and Schools

CODE	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23
A 1	5	5	1	5	4	4	5	1	2	1	1	2	5	1	1	5	5	1	1	1	1	1	3
A 1	5			5	3	5	5		1	1		3		1		5	1						4
A 4	4	1	1	5	5	5	1	1	1			3	2			1	1						3
A 2	5	1	1	4	5	5	4	3	3	3	3	4	4	5	5	5	5	1	2	2	1	1	3
A 2	5	1	1	5	1	2	2	1	4	1	1	3	2	1	1	3	3	2	1	1	1	1	1
A 3	5	2	1	2	4	4	2	1	2	2	2	2	2	5	4	3	4	1	2	1	1	1	4
A 3	5	5	5	3	3	3	1	1	2	1	1	1	3	1	1	1	3		1	1	1	1	3
B 4	5				5								5										
B 4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
B 3	5	1	1	3	5	5	3	2	4	4	3	4	3	1	1	3	4						4
B 3	5	1	1	5	5	5			5	5	5	5	5	5	5	5	5	5	5		5		5
B 2	3	1	1	3	1	4	1					2	4			2							
B 5	3	1	1	2	3	2	5	1	2	1	1	1	2	5	5	2	2	1	1	1	1	1	3
B 5	5	1	1			5			5		1	5	5			5							5
B 5	3			5	3	2						3		5		1	3						3
B 4	1				1	1	1			1	1												
B 1	3	1	1	1	3	4	2	1	5	1	1	2	2	2	2	1	2	1	1	1	1	1	2
B 1	5	5	1	5	5	5	5	1	5	3	3	3	4	5	2	3	5	1	1	1	1	2	5
Mean	4.06	1.93	1.29	3.6	3.35	3.65	2.71	1.27	3	1.92	1.85	2.75	3.27	2.92	2.55	2.88	3.14	1.56	1.6	1.11	1.4	1.11	3.27
STDEV	1.39	1.69	1.07	1.55	1.58	1.5	1.73	0.65	1.62	1.38	1.28	1.29	1.39	2.02	1.81	1.67	1.56	1.33	1.26	0.33	1.26	0.33	1.28
SEM	0.33	0.45	0.29	0.4	0.38	0.36	0.46	0.19	0.43	0.38	0.36	0.32	0.36	0.56	0.55	0.42	0.42	0.44	0.4	0.11	0.4	0.11	0.33

APPENDIX F

Survey Responses by District

Survey Responses by District: Acceleration

Survey Responses by Acceleration
Question 4: Form homogenous groups based on developmental age to facilitate learning
Mean for District A: 4.143 (n=7)
Mean for District B: 3.125 (n=8)

T-Test statistic for difference in two means: 1.33, p-value=0.2065
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q4 (Q4)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	7	4.1429	1.2150	0.4592	2.0000	5.0000
B	8	3.1250	1.7269	0.6105	1.0000	5.0000
Diff (1-2)		1.0179	1.5123	0.7827		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
A		4.1429	3.0192	5.2665	1.2150	0.7829	2.6755
B		3.1250	1.6813	4.5687	1.7269	1.1418	3.5147
Diff (1-2)	Pooled	1.0179	-0.6731	2.7088	1.5123	1.0964	2.4364
Diff (1-2)	Satterthwaite	1.0179	-0.6394	2.6751			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	13	1.30	0.2160
Satterthwaite	**Unequal**	**12.495**	**1.33**	**0.2065**

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	7	6	2.02	0.4099 -> Use Satterthwaite

Question 8: Create learning contracts for gifted students.
Mean for District A: 1.33 (n=6)
Mean for District B: 1.2 (n=5)

T-Test statistic for difference in two means: 0.34, p-value=0.7405
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q8 (Q8)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	6	1.3333	0.8165	0.3333	1.0000	3.0000
B	5	1.2000	0.4472	0.2000	1.0000	2.0000
Diff (1-2)		0.1333	0.6777	0.4104		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
A		1.3333	0.4765	2.1902	0.8165	0.5097	2.0026
B		1.2000	0.6447	1.7553	0.4472	0.2679	1.2851
Diff (1-2)	Pooled	0.1333	-0.7950	1.0616	0.6777	0.4661	1.2372
Diff (1-2)	Satterthwaite	0.1333	-0.7639	1.0306			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	9	0.32	0.7527
Satterthwaite	**Unequal**	**7.9587**	**0.34**	**0.7405**

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	5	4	3.33	0.2667 -> Use Satterthwaite

Question 10: Allow gifted students to complete independent study projects selected by you.
Mean for District A: 1.5 (n=6)
Mean for District B: 2.28 (n=7)

T-Test statistic for difference in two means: -1.08, p-value=0.3093
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q10 (Q10)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	6	1.5000	0.8367	0.3416	1.0000	3.0000
B	7	2.2857	1.7043	0.6442	1.0000	5.0000

	Diff (1-2)		-0.7857	1.3793	0.7674		
District	Method		Mean	95% CL Mean		Std Dev	95% CL Std Dev
A			1.5000	0.6220	2.3780	0.8367	0.5222 2.0520
B			2.2857	0.7095	3.8620	1.7043	1.0983 3.7531
Diff (1-2)	Pooled		-0.7857	-2.4747	0.9033	1.3793	0.9771 2.3420
Diff (1-2)	Satterthwaite		-0.7857	-2.4353	0.8638		

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	11	-1.02	0.3279
Satterthwaite	**Unequal**	**8.9948**	**-1.08**	**0.3093**

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	6	5	4.15	0.1399 -> Use Satterthwaite

Question 13: Allow gifted students to access advanced study material.
Mean for District A: 3.0 (n=6)
Mean for District B: 3.44 (n=9)

T-Test statistic for difference in two means: -0.62, p-value=0.54
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q13 (Q13)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	6	3.0000	1.2649	0.5164	2.0000	5.0000
B	9	3.4444	1.5092	0.5031	1.0000	5.0000
Diff (1-2)		-0.4444	1.4202	0.7485		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev
A		3.0000	1.6726	4.3274	1.2649	0.7896 3.1023
B		3.4444	2.2843	4.6045	1.5092	1.0194 2.8913
Diff (1-2)	Pooled	-0.4444	-2.0616	1.1727	1.4202	1.0296 2.2881
Diff (1-2)	Satterthwaite	-0.4444	-2.0130	1.1242		

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	13	-0.59	0.5629
Satterthwaite	**Unequal**	**12.153**	**-0.62**	**0.5490**

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	8	5	1.42	0.7251 -> Use Satterthwaite

Question 14: Recommend gifted students to attend higher grade level courses in English Lang. Arts.
Mean for District A: 2.33 (n=6)
Mean for District B: 3.43 (n=7)

T-Test statistic for difference in two means: -0.97, p-value=0.3539
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q14 (Q14)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	6	2.3333	2.0656	0.8433	1.0000	5.0000
B	7	3.4286	1.9881	0.7514	1.0000	5.0000
Diff (1-2)		-1.0952	2.0237	1.1259		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev
A		2.3333	0.1656	4.5010	2.0656	1.2894 5.0661
B		3.4286	1.5899	5.2672	1.9881	1.2811 4.3778
Diff (1-2)	Pooled	-1.0952	-3.5733	1.3828	2.0237	1.4336 3.4359
Diff (1-2)	Satterthwaite	-1.0952	-3.5942	1.4037		

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	11	-0.97	0.3516
Satterthwaite	**Unequal**	**10.55**	**-0.97**	**0.3539**

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	5	6	1.08	0.9109 -> Use Satterthwaite

Question 15: Recommend gifted students to be skipped a grade.
Mean for District A: 2.40 (n=5)
Mean for District B: 2.66 (n=6)

T-Test statistic for difference in two means: -0.23, p-value=0.8231
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q15 (Q15)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	5	2.4000	1.9494	0.8718	1.0000	5.0000
B	6	2.6667	1.8619	0.7601	1.0000	5.0000
Diff (1-2)		-0.2667	1.9013	1.1513		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
A		2.4000	-0.0204	4.8204	1.9494	1.1679	5.6016
B		2.6667	0.7127	4.6206	1.8619	1.1622	4.5665
Diff (1-2)	Pooled	-0.2667	-2.8710	2.3377	1.9013	1.3078	3.4710
Diff (1-2)	Satterthwaite	-0.2667	-2.9080	2.3747			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	9	-0.23	0.8220
Satterthwaite	**Unequal**	**8.4751**	**-0.23**	**0.8231**

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	5	1.10	0.8984 -> Use Satterthwaite

Question 22: Use grading telescoping.
Mean for District A: 1.00 (n=5)
Mean for District B: 1.25 (n=4)

T-Test statistic for difference in two means: -1.14, p-value=0.2924
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q22 (Q22)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	5	1.0000	0	0	1.0000	1.0000
B	4	1.2500	0.5000	0.2500	1.0000	2.0000
Diff (1-2)		-0.2500	0.3273	0.2196		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
A		1.0000	1.0000	1.0000	0	.	.
B		1.2500	0.4544	2.0456	0.5000	0.2832	1.8643
Diff (1-2)	Pooled	-0.2500	-0.7692	0.2692	0.3273	0.2164	0.6662
Diff (1-2)	Satterthwaite	-0.2500	-1.0456	0.5456			

Method	Variances	DF	t Value	Pr > |t|
Pooled	**Equal**	**7**	**-1.14**	**0.2924**
Satterthwaite	Unequal	3	-1.00	0.3910

Method	Num DF	Den DF	F Value	Pr > F
Folded F	3	4	Infty	<.0001 -> Use Pooled

Question 23: Use a higher grade text-based material.
Mean for District A: 3.00 (n=7)
Mean for District B: 3.50 (n=8)

T-Test statistic for difference in two means: -0.76, p-value=0.4595
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q23 (Q23)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	7	3.0000	1.0000	0.3780	1.0000	4.0000
B	8	3.5000	1.5119	0.5345	1.0000	5.0000
Diff (1-2)		-0.5000	1.3009	0.6733		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
A		3.0000	2.0752	3.9248	1.0000	0.6444	2.2021
B		3.5000	2.2361	4.7639	1.5119	0.9996	3.0770
Diff (1-2)	Pooled	-0.5000	-1.9545	0.9545	1.3009	0.9431	2.0958
Diff (1-2)	Satterthwaite	-0.5000	-1.9239	0.9239			

Method	Variances	DF	t Value	Pr > |t|

Pooled	Equal	13	-0.74	0.4709	
Satterthwaite	**Unequal**	**12.194**	**-0.76**	**0.4595**	

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	7	6	2.29	0.3333 -> Use Satterthwaite

Survey Response by District: Enrichment

Question 2: Invite parent volunteers to work with gifted learners in the classroom
Mean for District A: 2.5 (n=6)
Mean for District B: 1.5 (n=8)

T-Test statistic for difference in two means: 1.11, p-value=0.2895
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q2 (Q2)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	6	2.5000	1.9748	0.8062	1.0000	5.0000
B	8	1.5000	1.4142	0.5000	1.0000	5.0000
Diff (1-2)		1.0000	1.6708	0.9024		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
A		2.5000	0.4275	4.5725	1.9748	1.2327	4.8435
B		1.5000	0.3177	2.6823	1.4142	0.9350	2.8783
Diff (1-2)	Pooled	1.0000	-0.9661	2.9661	1.6708	1.1981	2.7581
Diff (1-2)	Satterthwaite	1.0000	-1.1586	3.1586			

Method	Variances	DF	t Value	Pr > |t|
Pooled	**Equal**	**12**	**1.11**	**0.2895**
Satterthwaite	Unequal	8.6697	1.05	0.3203

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	5	7	1.95	0.4079 -> Use pooled

Question 3: Invite members of the community to work with gifted learners in the classroom
Mean for District A: 1.67 (n=6)
Mean for District B: 1.00 (n=8)

T-Test statistic for difference in two means: 1.00, p-value=0.363
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q3 (Q3)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	6	1.6667	1.6330	0.6667	1.0000	5.0000
B	8	1.0000	0	0	1.0000	1.0000
Diff (1-2)		0.6667	1.0541	0.5693		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
A		1.6667	-0.0471	3.3804	1.6330	1.0193	4.0051
B		1.0000	1.0000	1.0000	0	.	.
Diff (1-2)	Pooled	0.6667	-0.5737	1.9070	1.0541	0.7559	1.7400
Diff (1-2)	Satterthwaite	0.6667	-1.0471	2.3804			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	12	1.17	0.2643
Satterthwaite	**Unequal**	**5**	**1.00**	**0.3632**

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	5	7	Infty	<.0001 -> Use Satterthwaite

Question 6: Use flexible grouping of like-ability to move students up or down in the subject.
Mean for District A: 4.0 (n=7)
Mean for District B: 3.4 (n=10)

T-Test statistic for difference in two means: 0.86, p-value=0.4019
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q6 (Q6)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	7	4.0000	1.1547	0.4364	2.0000	5.0000
B	10	3.4000	1.7127	0.5416	1.0000	5.0000
Diff (1-2)		0.6000	1.5144	0.7463		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
A		4.0000	2.9321	5.0679	1.1547	0.7441	2.5427
B		3.4000	2.1748	4.6252	1.7127	1.1781	3.1267
Diff (1-2)	Pooled	0.6000	-0.9907	2.1907	1.5144	1.1187	2.3438
Diff (1-2)	Satterthwaite	0.6000	-0.8826	2.0826			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	15	0.80	0.4340
Satterthwaite	**Unequal**	**14.998**	**0.86**	**0.4019**

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	9	6	2.20	0.3494 -> use Satterthwaite

Question 7: Allow gifted students to use advanced computer programs built for gifted learners.
Mean for District A: 2.85 (n=7)
Mean for District B: 2.57 (n=7)

T-Test statistic for difference in two means: 0.30, p-value=0.7707
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q7 (Q7)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	7	2.8571	1.7728	0.6701	1.0000	5.0000
B	7	2.5714	1.8127	0.6851	1.0000	5.0000
Diff (1-2)		0.2857	1.7928	0.9583		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
A		2.8571	1.2176	4.4967	1.7728	1.1424	3.9038
B		2.5714	0.8950	4.2479	1.8127	1.1681	3.9916
Diff (1-2)	Pooled	0.2857	-1.8023	2.3737	1.7928	1.2856	2.9595
Diff (1-2)	Satterthwaite	0.2857	-1.8024	2.3738			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	12	0.30	0.7707
Satterthwaite	**Unequal**	**11.994**	**0.30**	**0.7707**

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	6	6	1.05	0.9583 -> Use Satterthwaite

Question 11: Allow gifted students to complete independent study projects selected by them.
Mean for District A: 1.6 (n=5)
Mean for District B: 2.0 (n=8)

T-Test statistic for difference in two means: -0.60, p-value=0.5612
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q11 (Q11)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	5	1.6000	0.8944	0.4000	1.0000	3.0000
B	8	2.0000	1.5119	0.5345	1.0000	5.0000
Diff (1-2)		-0.4000	1.3212	0.7532		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
A		1.6000	0.4894	2.7106	0.8944	0.5359	2.5702
B		2.0000	0.7361	3.2639	1.5119	0.9996	3.0770
Diff (1-2)	Pooled	-0.4000	-2.0577	1.2577	1.3212	0.9359	2.2432
Diff (1-2)	Satterthwaite	-0.4000	-1.8694	1.0694			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	11	-0.53	0.6059
Satterthwaite	**Unequal**	**10.999**	**-0.60**	**0.5612**

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	7	4	2.86	0.3271 -> Use Satterthwaite

Question 12: Use tiered assignments
Mean for District A: 2.57 (n=7)
Mean for District B: 2.89 (n=9)

T-Test statistic for difference in two means: -0.50, p-value=0.6231
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q12 (Q12)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	7	2.5714	0.9759	0.3689	1.0000	4.0000
B	9	2.8889	1.5366	0.5122	1.0000	5.0000
Diff (1-2)		-0.3175	1.3257	0.6681		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
A		2.5714	1.6689	3.4740	0.9759	0.6289	2.1490
B		2.8889	1.7078	4.0700	1.5366	1.0379	2.9438
Diff (1-2)	Pooled	-0.3175	-1.7503	1.1154	1.3257	0.9705	2.0907
Diff (1-2)	Satterthwaite	-0.3175	-1.6752	1.0402			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	14	-0.48	0.6420
Satterthwaite	**Unequal**	**13.58**	**-0.50**	**0.6231**

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	8	6	2.48	0.2848 -> Use Satterthwaite

Question 17: Use the icons of depth and complexity.
Mean for District A: 3.14 (n=7)
Mean for District B: 3.14 (n=7)

T-Test statistic for difference in two means: 0.0, p-value=1.00
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q17 (Q17)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	7	3.1429	1.6762	0.6335	1.0000	5.0000
B	7	3.1429	1.5736	0.5948	1.0000	5.0000
Diff (1-2)		0	1.6257	0.8690		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
A		3.1429	1.5927	4.6930	1.6762	1.0801	3.6910
B		3.1429	1.6875	4.5982	1.5736	1.0140	3.4652
Diff (1-2)	Pooled	0	-1.8933	1.8933	1.6257	1.1658	2.6836
Diff (1-2)	Satterthwaite	0	-1.8941	1.8941			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	12	0.00	1.0000
Satterthwaite	**Unequal**	**11.952**	**0.00**	**1.0000**

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F	
Folded F	6	6	1.13	0.8821	-> Use Satterthwaite

Question 18: Take gifted students on field trips.
Mean for District A: 1.25 (n=4)
Mean for District B: 1.80 (n=5)

T-Test statistic for difference in two means: -0.66, p-value=0.5421
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q18 (Q18)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	4	1.2500	0.5000	0.2500	1.0000	2.0000
B	5	1.8000	1.7889	0.8000	1.0000	5.0000
Diff (1-2)		-0.5500	1.3913	0.9333		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
A		1.2500	0.4544	2.0456	0.5000	0.2832	1.8643
B		1.8000	-0.4212	4.0212	1.7889	1.0718	5.1404
Diff (1-2)	Pooled	-0.5500	-2.7569	1.6569	1.3913	0.9199	2.8317
Diff (1-2)	Satterthwaite	-0.5500	-2.7378	1.6378			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	7	-0.59	0.5742
Satterthwaite	**Unequal**	**4.7589**	**-0.66**	**0.5421**

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F	
Folded F	4	3	12.80	0.0629	-> Use Satterthwaite

Question 19: Allow students to self-design their courses.
Mean for District A: 1.4 (n=5)
Mean for District B: 1.8 (n=5)

T-Test statistic for difference in two means: -0.48, p-value=0.6454
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q19 (Q19)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	5	1.4000	0.5477	0.2449	1.0000	2.0000
B	5	1.8000	1.7889	0.8000	1.0000	5.0000
Diff (1-2)		-0.4000	1.3229	0.8367		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
A		1.4000	0.7199	2.0801	0.5477	0.3282	1.5739
B		1.8000	-0.4212	4.0212	1.7889	1.0718	5.1404
Diff (1-2)	Pooled	-0.4000	-2.3293	1.5293	1.3229	0.8935	2.5343
Diff (1-2)	Satterthwaite	-0.4000	-2.5862	1.7862			

Method	Variances	DF	t Value	Pr > |t|
Pooled	**Equal**	**8**	**-0.48**	**0.6454**
Satterthwaite	Unequal	4.7435	-0.48	0.6538

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F	
Folded F	4	4	10.67	0.0416	-> Use Pooled

Question 20: Use the classroom learning center two hours a day to complete a talent portfolio.
Mean for District A: 1.2 (n=5)
Mean for District B: 1.0 (n=4)

T-Test statistic for difference in two means: 0.88, p-value=0.4071
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q20 (Q20)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	5	1.2000	0.4472	0.2000	1.0000	2.0000
B	4	1.0000	0	0	1.0000	1.0000
Diff (1-2)		0.2000	0.3381	0.2268		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
A		1.2000	0.6447	1.7553	0.4472	0.2679	1.2851
B		1.0000	1.0000	1.0000	0	.	.
Diff (1-2)	Pooled	0.2000	-0.3362	0.7362	0.3381	0.2235	0.6880
Diff (1-2)	Satterthwaite	0.2000	-0.3553	0.7553			

Method	Variances	DF	t Value	Pr > |t|
Pooled	**Equal**	**7**	**0.88**	**0.4071**
Satterthwaite	Unequal	4	1.00	0.3739

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	3	Infty	<.0001 -> Use Pooled

Question 21: Provide community-centered assignments.
Mean for District A: 1.0 (n=5)
Mean for District B: 1.8 (n=5)

T-Test statistic for difference in two means: -1.0, p-value=0.3466
Conclusion: There is no difference between the districts for this question.

SAS Output

Variable: Q21 (Q21)

District	N	Mean	Std Dev	Std Err	Minimum	Maximum
A	5	1.0000	0	0	1.0000	1.0000
B	5	1.8000	1.7889	0.8000	1.0000	5.0000
Diff (1-2)		-0.8000	1.2649	0.8000		

District	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
A		1.0000	1.0000	1.0000	0	.	.
B		1.8000	-0.4212	4.0212	1.7889	1.0718	5.1404
Diff (1-2)	Pooled	-0.8000	-2.6448	1.0448	1.2649	0.8544	2.4233
Diff (1-2)	Satterthwaite	-0.8000	-3.0212	1.4212			

Method	Variances	DF	t Value	Pr > |t|

Pooled	**Equal**	**8**	**-1.00**	**0.3466**
Satterthwaite	Unequal	4	-1.00	0.3739

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	4	4	Infty	<.0001 -> Use Pooled

APPENDIX G

STAR Program Scores Relation to Acceleration and Enrichment

Regression Model: STARmean~District + meanEnrich +meanAccel

Coefficients:

	Estimate	Std.Error	t value	**Pr(>|t|)**
Intercept)	387.124	12.726	30.420	7.2e07***
DistrictB	13.536	5.172	2.617	0.0473*
meanEnrich	-4.343	4.492	-0.967	**0.3781**
meanAccel	5.255	5.666	0.927	**0.3963**

Signif.codes: 0'**' 0.001'**' 0.01'*' 0.05'.' 0.1'' 1

Residual standard error: 7.702 on 5 degrees of freedom
Multiple R-squared: 0.617, Adjusted R-squared: 0.3872
F-statistic: 2.685 on 3 and 5 DF, p-value: 0.1574